

DRAFT ENVIRONMENTAL IMPACT REPORT

THE PROPOSED ZEERUST CHICKEN ABATTOIR

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STRATEGIC ENVIRONMENTAL FOCUS

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PURPOSE OF DOCUMENT

A period of **40 calendar days (11 June 2014 – 23 July 2014)** has been provided to the **State Departments** and **registered Interested and Affected Parties (I&APs)** for the review and commenting phase of the Draft Environmental Impact Report (EIR). All I&APs as well as State Departments have been notified of this review period.

The Draft EIR contains the following information:

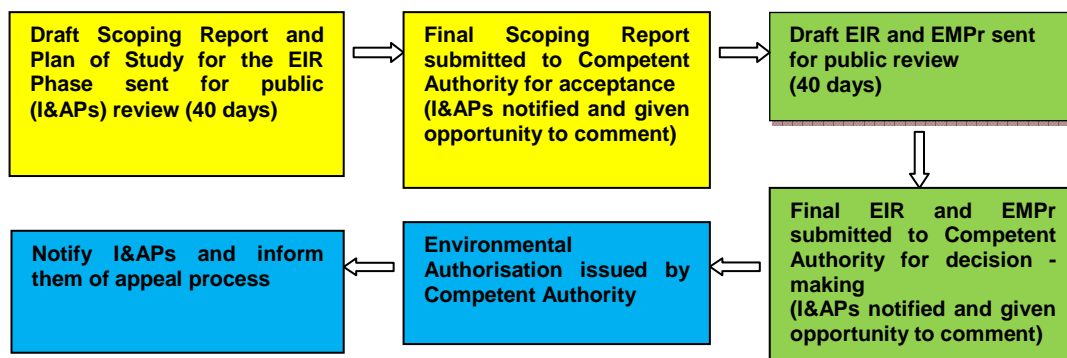
- A description of the project, including project motivation;
- A description of the environment affected by the project;
- The public participation process;
- Discussion of applicable alternatives;
- Assessment of impacts for the construction and operational phases; and
- The EAP's recommendations.

The Draft EIR can be viewed at the following venue:

Name of public venue	Name of Contact Person	Contact Number(s)	Viewing Times
Zeerust Public Library, 32 Marico Plaza, Zeerust, 2865	Mr Siya Mabaco	(018) 642 3713	Mon – Thurs: 8am – 5pm Fri: 8am – 4pm

Should you wish to participate in the S&EIR process by contributing issues of concerns/comments, please register as an I&AP by completing the enclosed Registration and Comment Sheet or you can visit SEF's website at <http://www.sefsa.co.za>. To register as an I&AP or comment on the project, click on "Stakeholder Engagement". Click on the "register" button and complete the compulsory fields to register as an I&AP. On completion of these fields, you will be able to log in and view the Draft Environmental Impact Report (EIR) for the **Proposed Zeerust Chicken Abattoir** and associated appendices. Should you have any problems in obtaining the information from the Internet, please feel free to contact SEF for assistance.

Following the commenting period, the EIR will be updated and submitted to the Department of Environmental Affairs (DEA) for consideration towards Environmental Authorisation. The flow diagram below highlights the phases in the project where I&APs have the opportunity to participate within the process.



PROJECT SUMMARY	
Project Name	Zeerust Chicken Abattoir
Farm Name and Portions	Erf 1017/0, Zeerust JP (10 Collins Street)
Surveyor-General 21 Digit Codes	TOJP0000000002400000
Brief Development Overview	Proposed chicken abattoir to be developed in the Ramotshere Moiloa Local Municipality with the capacity to slaughter 5000 chickens a day, to be phased over 5 years. The development will consist of facilities for the slaughter of the chicken as well as an on-site waste water management facility for the treatment of waste water generated on site.
Development Footprint	Erf 1017 – 5710m ²
Site Photographs	Appendix 2
Copy of Title Deeds	Appendix 9
Additional Authorisations Required	
Waste Management License	The proposed project includes the construction of an associated on-site waste management facility. Such a facility, as well as the temporary storage of hazardous waste on site (prior to removal) will require a waste management license issued by the Department of Environmental Affairs.
Confirmation of Capacity to Supply Bulk Services:	
Water (Construction & Operational Phases)	Supplier: Ramotshere Moiloa Local Municipality
Stormwater Attenuation (Construction & Operational Phases)	Appropriate stormwater management plan to be developed
Sewage (Construction & Operational Phases)	Supplier: Ramotshere Moiloa Local Municipality
Electricity (Construction & Operational Phases)	Supplier: Ramotshere Moiloa Local Municipality
Solid Waste (Construction & Operational Phases)	Receiver: Ramotshere Moiloa Local Municipality

ENVIRONMENTAL ASSESSMENT PRACTITIONER

Strategic Environmental Focus (Pty) Ltd (SEF) is a privately owned company and was formed in 1997 with the objective of providing **expert solutions to pressing environmental issues. SEF is one of Africa’s largest multi-disciplinary environmental consultancies**, offering sustainable environmental solutions to private and public sector clients. With our integrated services approach in the management of natural, built and social environments; and with over a decade of experience, we bring a wealth of knowledge and expertise to each project.

SEF’s Vision

SEF offers holistic and innovative sustainable solutions in response to global challenges.

SEF’s Mission

SEF is a national sustainability consultancy which provides integrated and innovative Social, Biophysical & Economic solutions while fostering strategic stakeholder relationships, underpinned by SEF’s core values.

SEF has assembled a team of professionals, consisting of a core of environmental experts with extensive experience in dealing with Environmental Impact Assessments (EIAs), Public Participation Processes, Architectural and Landscape Architecture, Mining and Environmental Management. SEF also has a team of specialist practitioners such as specialists in Heritage Impact Assessments (HIA), Wetland Delineation and Functional Assessments; Wetland/ Riparian Rehabilitation, Aquatic Assessments; Ecological (Fauna, Avifauna and Flora) Assessment, Visual Impact Assessments (VIAs), Soils and Agricultural Potential Assessments, Socio-Economic Assessments, etc.

SEF is a Qualifying Small Enterprise and a **Level 2 contributor in terms of the Broad Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)** and has a procurement recognition level of 156%.

SEF commits itself to comply with the requirements and the implementation of a Quality Management System. The Quality Management System will be reviewed and implemented to continually improve efficiency and effectiveness of the organisation.

SEF uses a “green” approach to anything we embark on. We believe in using technology to our and the environment’s best advantage. We encourage the use of green alternatives such as telephone and video conferencing instead of travelling for workshops and meetings and CDs instead of printed material, where possible.

The following project team members are involved in this S&EIR application process.

Table 1: Project Team Members

Name	Organization	Project Role
Ms Carene Kruger	SEF	Project Manager
Ms. Poogendri Reddy	SEF	Environmental Assistant
Ms. Karin van der Walt	SEF	Floral Specialist / Terrestrial Ecologist
Mr Anton Pelser	A Pelser Archaeological Consulting cc	Heritage Specialist
Ms Jessica de Beer	SEF	Principal: Social Services

Ms Carene Kruger

Carene holds a BSc (Honours) Degree in Environmental Management (University of Johannesburg) and has been an EAP for over 7 years. She is employed as a Project Manager at SEF and has been with the company for 5 years. Her working experience varies from small to large scale projects pertaining to master planning, commercial, residential, mining and municipal infrastructure projects. Carene has excellent knowledge of the NEMA and has dealt with legal processes such as the Gautrain Variant Assessment High Court Interdict and other appeal processes. She also worked in the United Kingdom as a commercial recycling advisor and has extensive experience in community upliftment projects obtained in Mozambique. Key projects include: Lonmin Platinum EMPr amendment applications, Wonderboom Airport expansion, Gautrain Variant Assessment EIA, SKA- Meerkat infrastructure and Hazeldean Node Master Plan.

Ms Poogendri Reddy

Poogendri has obtained a BSc Honours in Zoology from Rhodes University. She is currently registered as a Candidate Natural Scientist with the South African Council for Natural Scientific Professions. She has worked for the South African Institute for Aquatic Biodiversity undertaking research in freshwater and marine ichthyology and has worked on numerous local and international research projects in the fields of molecular systematics and estuarine ecology. She has been with SEF for almost a year as an environmental assistant and public participation practitioner. She has a broad working knowledge and experience in basic assessments, scoping and environmental impact assessments and mine closure assessments for a range of development and mining projects.

Ms Karin van der Walt

Karin has more than 10 years' experience in the field of Nature Conservation. After working as a wilderness trails ranger in the Kruger National Park for five years, she was employed to manage a project on threatened and medicinal plants in South Africa. Through this she was exposed to extensive fieldwork, plant population assessments, threat assessments and biodiversity management plans. She has presented nationally and internationally on ecological and conservation issues. Currently, as a specialist ecologist for SEF, she is doing faunal and floral assessments, ecological management plans, impact assessments and mitigations.

Mr Anton Pelser

Mr Pelser has an MA in Archaeology from WITS University and currently conducts cultural heritage consultancy work and research on a full-time basis. He has published 30 articles in scientific and popular journals on archaeology and history and has authored and co-authored nearly 550 unpublished Heritage and Archaeological Impact Assessment Reports, including 2nd phase grave exhumations and archaeological excavations. He is a professional member of ASAPA (Association of Southern African Professional Archaeologists) and SASCH (South African Society of Cultural History) with almost 20 years of experience.

Ms Jessica de Beer

Jessica is a Social Scientist and Public Participation Practitioner with 8 years' experience in social research and community participation processes. She holds an Honours degree in Sociology from the University of Pretoria and has extensive experience in conducting social related impact assessments. Jessica has been involved in various SIAs, ranging between mining, infrastructure and residential development type projects. She has also been involved in the design and management of numerous public participation programmes in a range of different communities, which requires pro-active engagement with affected communities during the assessment process. In addition to the above, Jessica's experience includes feasibility studies to predict the impacts of development on social environments, the compilation of Social and Labour Plans, the development of environmental awareness training, as well as social baseline reporting as part of Strategic Environmental Assessments and Environmental Management Frameworks.

Table 2: Contact Details of Environmental Assessment Practitioner

Name	Contact Details
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EXECUTIVE SUMMARY

1 INTRODUCTION

Strategic Environmental Focus (Pty) Ltd (SEF) has been appointed by the Economic Creation for Development Centre (ECD) of the Council for Scientific and Industrial Research (CSIR) to undertake an environmental application process for the proposed Zeerust Chicken Abattoir.

The opportunity for the establishment of a chicken abattoir was identified by the North West Department of Economic Development, Environment, Conservation and Tourism (NW-DEDECT) in conjunction with the CSIR ECD due to the perceived demand in the area. According to the South African Poultry Association more poultry products are consumed in South Africa than all other animal-protein sources combined annually. The North West province in particular is responsible for the production of approximately 24% of broiler birds in South Africa, which equates to approximately 25 – 26 million broiler birds bred or reared.

A Scoping and Environmental Impact Reporting (S&EIR) process will be conducted for this project based on triggered listed activities within the Environmental Impact Assessment (EIA) Regulations of 2010 (Government Notice (GN) No's 543; 544; 545 and 546) promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

The Scoping Phase for the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) Environmental Authorisation (EA) Application for the proposed project has been completed and the Final Scoping Report and Plan of Study for the Environmental Impact Report (EIR) were submitted to the Department of Environmental Affairs (DEA) on the 11 October 2013. Approval to proceed to the NEMA EIR phase was received on 18 November 2013.

The purpose of this Draft EIR is to provide all interested and affected parties (I&APs) and relevant State Departments with an opportunity to comment and provide input into the process going forward. All comments received during the review and commenting phase will be incorporated into the Final EIR for consideration by the approving authority, DEA.

2 BRIEF PROJECT DESCRIPTION

The project will entail the construction and operation of a chicken abattoir in the Zeerust industrial area situated within the Ramotshere Moilola Local Municipality (RMLM). The land designated by the RMLM for the establishment of the abattoir is located on Erf 1017/0 Zeerust JP (10 Collins Street) in the Zeerust Industrial district. The registered size of the plot is 5, 710 m².

The project will include the physical construction of the abattoir and an associated waste management facility to be constructed adjacent to the abattoir building, which will accommodate and treat waste generated by the abattoir facility.

The production intention is to slaughter 5 000 chickens a day. This will begin with the abattoir producing at 20% output (1000 chickens) a day in year 1. This will increase by 15% in year 2 and thereafter increase to 50% output in year 3, 75% output in year 4 and full capacity is envisioned to be reached by year 5.

3 KEY IMPACTS

The following key impacts were identified during the Scoping Phase and were further investigated and assessed within this EIR.

Biophysical Impacts:

- Potential impact on the soil profile
- Potential impact on the groundwater regime;
- Increased surface water runoff from cleared surfaces into the municipal system;
- Destruction of natural vegetation included species of conservation concern and disturbance of faunal species; and
- Spread of alien invasive plant species.

Socio-Economic Impacts:

- Increased dust generation during the construction phase;
- Increased noise generation during the construction phase;
- Health considerations during operational phase;
- Impact of the odour from the abattoir operations;
- Waged labour / Employment creation and decrease in unemployment;
- Conversion and diversification of land use; and
- Capacity building and skills transfer.

Cumulative Impacts:

- Increased visual impact associated with additional industry; and
- The impact of the scent of operations considered in context of other operations in the area.

4 PROJECT ALTERNATIVES

To give effect to the principles of NEMA and Integrated Environmental Management (IEM), an EIA should assess a number of reasonable and feasible alternatives that may achieve the same end result as that of the preferred project alternative. The following alternatives have been identified during the scoping phase of the project and were further investigated as part of this EIA:

Alternative 1: Site/ Location Alternatives:

Prior to the commencement of the environmental process, the CSIR ECD together with the applicant evaluated three (3) to four (4) potential sites for the development of the abattoir. The zoning of the land and the availability and connections to bulk services were considered during this process. As such the proposed location was allocated to the project by the RMLM and **no further site/ location alternatives are considered as feasible alternatives.**

Alternative 2: Layout/ Design Alternatives:

The design and functioning of the abattoir is currently being developed by the CSIR ECD in conjunction with other consultants, i.e. architects for the design component. The design of the abattoir and waste management facility will bear in mind the principles of sustainable environmental management and will be designed to be as efficient and have as little impact as is reasonable. However, to give effect to the principles of NEMA, the on-site treatment of waste from the abattoir vs. the off-site treatment thereof (by means of the RMLM infrastructure such as the municipal WWTW) is the only feasible alternative considered by the EIA Process.

Alternative 3: Process Alternatives:

Process alternatives may be considered as the project progresses further in the design phase. Although job creation and local economic development remains a priority, technology alternatives for de-feathering of chickens and processing of chickens are being considered. Process alternatives may also only be implemented during the operational phase as the necessity to streamline processes become necessary, access to new technologies become available and further funding is available to invest in new technology. However, the inclusion of process alternatives cannot be included as an alternative as it would be premature.

Alternative 4: No Development Alternative:

This option assumes that a conservative approach would ensure that the environment is not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current condition of the area. Should the DEA decline the application, the 'No-Go' option will be followed and the status quo of the site will remain.

5 CONCLUSIONS AND RECOMMENDATIONS

In accordance with GN No. 543, the Environmental Impact Phase is aimed at identifying and assessing potential impacts caused by the proposed development. The ability to mitigate any of the identified impacts are also addressed and summarised into a working / dynamic Environmental Management Programme (EMPr) for consideration by I&APs and ultimately by the DEA.

Comments and/or concerns identified by Interested and Affected Parties (I&APs) during the review period of the Draft Environmental Impact Report will be incorporated into the Final EIR which will then be submitted to the DEA for consideration.

A comprehensive investigation of the impacts created by the proposed development was investigated in this EIR and, wherever possible, mitigation measures were outlined to minimise the impact. The ability to mitigate any of the potential impacts identified was also further detailed and summarised into a working/ dynamic EMPr which will be available for consideration by I&APs and ultimately by the DEA.

Having assessed all the potential environmental impacts associated with the proposed development it is the opinion of the EAP that the proposed Zeerust Chicken Abattoir development is issued with a positive Environmental Authorisation from DEA for the following reasons:

- The location of the site chosen is within the Zeerust Industrial area and has all available bulk services infrastructure in place for the efficient integration of the abattoir into the industrial area (to be facilitated by the applicant, RMLM);
- The impacts identified in the EIR phase can be adequately mitigated to minimise the effects on the surrounding community and the environment, provided that the conditions of the operational EMPr are adhered to, audited on a regular basis and regular reports are submitted to the Department of Environmental Affairs as per conditions that will be stipulated in the environmental authorisation;
- The use of newer technologies and the commitment to the effective disposal of waste will, most importantly, ensure that minimal impact is made on the surrounding environment in terms of air quality and odour-causing contaminants;
- The positive contribution to the local economy in terms of revenue and job creation is viewed to be of significant importance;
- It is essential that an ecologically-sensitive stormwater management plan be compiled prior to the start of construction. This may be made a condition of the environmental authorisation;
- An alien eradication and monitoring plan should be compiled prior to the start of construction to ensure that alien invasive plants are properly managed and to ensure the integrity of the indigenous vegetation that dominates the site;
- The facility must comply with the guidelines provided in the Occupation Health and Safety Act, 1993 as well as to the associated general and health-specific regulations and local municipality by-laws with regard to noise;
- It is the recommendation of the EAP that the confirmation of bulk services by the municipality be made a condition of the environmental authorisation and the letters of confirmation of services be made available to the DEA prior to construction; and
- Although a number of potential negative impacts were identified, with appropriate and recommended mitigation, there are no fatal flaws that should prevent the development from proceeding.

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LIST OF ABBREVIATIONS AND ACRONYMS

BBBEE	Broad Black-Based Economic Empowerment
CBD	Central Business District
CRR	Comments and Responses Report
CSIR	Centre for Scientific and Industrial Research
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECD	Enterprise Creation for Development
EIA	Environmental Impact Assessment
EIR	Environmental Impact Reporting
EMPr	Environmental Management Programme
GN	Government Notice
ha	Hectares
HIA	Heritage Impact Assessment
I&APs	Interested and Affected Parties
IEM	Integrated Environmental Management
IRP	Integrated Resource Plan
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
ME	Mitigation Efficiency
mm	Millimetres
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)

NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
NW-DEDECT	North West Department of Economic Development, Environment, Conservation and Tourism
PoS for EIR	Plan of Study for EIR
RMLM	Ramotshere Moiloa Local Municipality
SAHRA	South African Heritage Resources Agency
SEF	Strategic Environmental Focus (Pty) Ltd
SFM	Significance Following Mitigation
S&EIR	Scoping and Environmental Impact Reporting
SDF	Spatial Development Framework
WOM	Without Mitigation Measures
WM	With Mitigation Measures
WML	Waste Management License
WF	Weighting Factor

GLOSSARY OF TERMS

Abattoir	A facility for the slaughter of animals with the intention of the end product being consumed as food products.
Applicant	Any person who applies for an authorisation to undertake an activity or to cause such activity to be undertaken as contemplated in sections 24(5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).
Ecology	The study of the interrelationships between organisms and their environments.
Environment	The surroundings within which humans exist and that are made up of – (i) the land, water and atmosphere of the earth; (ii) micro-organisms, plant and animal life; (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.
Environmental Impact Assessment	Systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and S&EIR.
Environmental Management Programme	A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
Interested and Affected Party	Any person or groups of persons who may express interest in a project or be affected by the project, positively or negatively.
Key Stakeholder	Any person who acts as a spokesperson for his/her constituency and/or community/organization, has specialized knowledge about the project and/or area, is directly or indirectly affected by the project or who considers himself/herself a key stakeholder.
Stakeholder	Any person or group of persons whose live(s) may be affected by a project.
Study Area	Refers to the entire study area encompassing all the alternatives as indicated on the study area or locality map.
Succession	The natural restoration process of vegetation after disturbance.
State Department	Any department or administration in the national or provincial sphere of government exercising functions that involve the management of the environment.

SECTION A: INTRODUCTION

Strategic Environmental Focus (Pty) Ltd (SEF) has been appointed by the Economic Creation for Development Centre (ECD) of the Council for Scientific and Industrial Research (CSIR) to undertake an environmental application process for the proposed Zeerust Chicken Abattoir to be located within the Zeerust Industrial District in the North West Province.

A-1 DESCRIPTION OF PROPOSED ACTIVITY

A-1.1 Locality

The proposed site is located on Erf 1017/0 within the Zeerust Industrial Area in the Ramotshere Moiloa Local Municipality (RMLM). The approximate size of the Erf is 5,710 m² and the central coordinates of the site are:

- 25°33'2.837"S and 26°5'39.092"E.

The land on which the chicken abattoir is to be developed is currently vacant.

A-1.2 Surrounding Land Use

To further place the site in context, the land uses within all four major compass directions that surround the site are described in the Table 3 below.

Table 3: Surrounding Land Use Table

Direction	Land Use	Distance (m)
North	Industry	Adjacent to the site
South	Vacant	Adjacent to the site
	Vacant	Adjacent to the site
East	Industry / commercial	100m from boundary of site
West	Industry	Across road, 50m from boundary of site



Figure 1: Locality Map of the proposed Zeerust Chicken Abattoir

A-1.3 Details of the Project

A-1.3.1 Proposed Zeerust Chicken Abattoir

The project will entail the construction and operation of a chicken abattoir in the Zeerust industrial area situated within the RMLM. The land designated by the RMLM for the establishment of the abattoir is located on Erf 1017/0 Zeerust JP (10 Collins Street) in the Zeerust Industrial district. The registered size of the plot is 5710 m².

The project will include the physical construction of the abattoir and an associated waste management facility to be constructed adjacent to the abattoir building, which will accommodate and treat waste generated by the abattoir. The proposed project includes the construction of the abattoir and the installation of processing equipment.

The production intention is to slaughter 5 000 chickens a day. This will begin with the abattoir producing at 20% output (1000 chickens) a day in year 1. This will increase by 15% in year 2 and thereafter increase to 50% output in year 3, 75% output in year 4 and full capacity is envisioned to be reached by year 5.

The design of the waste water treatment facility will consist of activated sludge reactors, clarifiers and sludge drying beds. The design of the facility has been completed and complete design drawing have been attached in Appendix 3. Figure 2 below provides a high level indication of the process flow of raw water that will enter the system and be treated and the points at which treated water will enter the municipal waste stream.

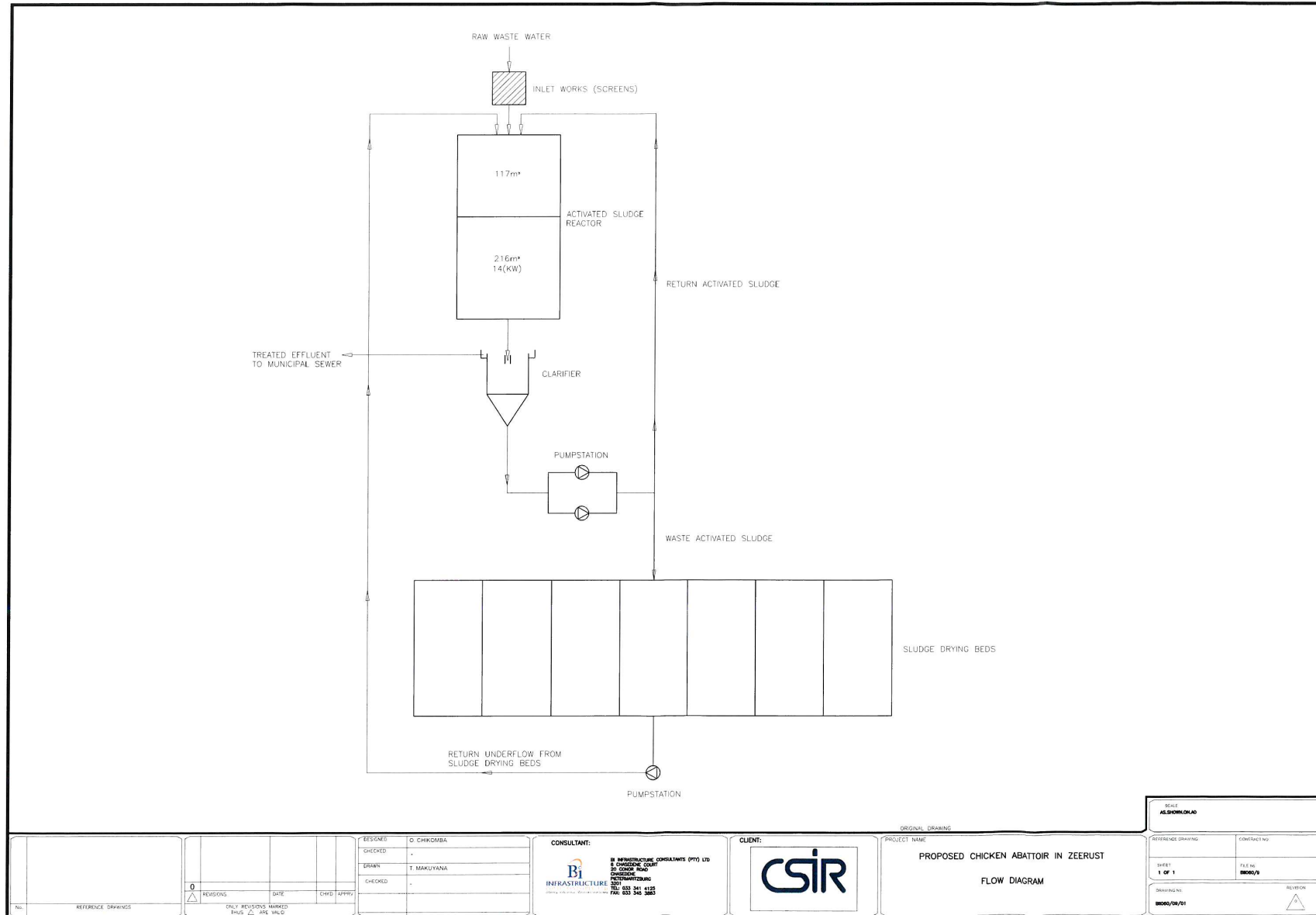


Figure 2: Flow diagram representing the proposed process flow of the waste water treatment facility

A-1.3.2 Proposed Bulk Services

Electricity Supply

The RMLM, as the applicant in this regard, will ensure that the required electricity supply to the site will be in order prior to commencement of construction.

Water Supply

The RMLM, as the applicant in this regard, will ensure that the required water supply to the site will be in order prior to commencement.

Solid Waste

The contractor will remove solid waste during the construction phase on a weekly basis to the nearest registered waste disposal facility.

During the operational phase, all waste (glass, plastic, paper, tins) generated on site will be recycled (as far as possible). All remaining solid waste on site will be disposed of with either a registered waste disposal facility or the municipality.

Sewage Treatment

The sewage generated by the proposed Zeerust abattoir is anticipated to feed into the RMLM municipal waste stream. The RMLM as the applicant in this regard, will ensure that the required capacity is available prior to commencement.

Stormwater Management

An appropriate stormwater system (to be developed by the appointed engineer) will be in line with the RMLM building specifications. Clean and dirty water will be separate through channels on site, to ensure that dirty water does not enter the municipal sewerage system prior to on-site treatment (as per Figure 2).

A-1.3.3 Project Phases

The project will take place in two phases, namely the Construction and Operational Phase.

Construction Phase: All the construction related activities on site, until the contractor leaves the site.

Site clearing and construction of the abattoir and associated waste water treatment works will take approximately 12-14 months.

Operational Phase: All activities, including the operation and maintenance of the proposed development.

Construction Phase

Subject to receiving Environmental Authorisation (EA) from DEA, the installation of service infrastructure (as required) for the proposed abattoir will commence in 2015.

The appointed Contractor will be responsible for the preparation of a Construction Site Development Plan prior to mobilising on site. This plan will indicate the boundaries of the site that encompasses all construction related activities, vehicle and pedestrian access points, laydown area/s, offices, stockpile areas, storage

areas, ablution facilities, etc. This Site Development Plan must be approved by the appointed Environmental Control Officer (ECO) as provided for within the Environmental Management Programme (EMPr) (Appendix 8).

The construction programme will reflect the separate work sections, in chronological order, according to the Contractor's intended construction sequence, as described in the Construction Site Development Plan.

Water needed during the construction phase will be sourced from the RMLM and will be used for various activities on site, including dust suppression on dry, windy days. Electricity supply for construction activities will be provided by the local municipality. Diesel generators will also be utilised on site and stored within a designated storage area if needed.

The Contractor will be responsible for the management and removal of all solid waste from site to a designated, registered landfill site. Solid waste generation will be minimal and the contractor will dispose by means of contracting a reputable waste removal company or by entering into an agreement with the local municipality. A method statement for the management of waste will be drafted and signed off by the ECO prior to commencement of construction activities, as per the attached EMPr (Appendix 8).

Operational Phase

The operational phase will be characterised by the following activities:

- The entire site (approximately 5710 m²) will be fenced off with a 2.5 meter high security fence.
- The fence will be visually permeable and will be screened with planting, where possible.

A-1.3.4 Capacity Building

Skills and labour requirements and opportunities

The construction phase will require skilled and unskilled labour and will create a total of 140 construction related short term jobs as well as a further 46 employment opportunities for the local community. The availability of skilled and unskilled labour in the area has been addressed further in the Social Impact Assessment and specific numbers outlined.

A-2 LEGAL REQUIREMENTS APPLICABLE TO THIS APPLICATION

The integrated application for the environmental authorisation and a waste management license in terms of NEMA was submitted to the DEA on 31 July 2013. The project was subsequently registered and DEA issued the project with reference number DEA Ref: **14/12/16/3/3/89**. Refer to Appendix 4 for the DEA acknowledgement of receipt of the application.

The Final Scoping Report (including the Plan of Study (PoS) for Environmental Impact Report (EIR) was submitted to the DEA on 11 October 2013 and was accepted by the DEA in a letter dated 18 November 2013 (refer to Appendix 4 for the acceptance of the Final Scoping Report and PoS for EIR).

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

A-2.1 NEMA and the Environmental Impact Assessment Regulations

The EIA Regulations, promulgated under NEMA, focus primarily on creating a framework for co-operative environmental governance. NEMA provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative

governance and procedures for co-ordinating environmental functions exercised by State Departments and to provide for matters connected therewith.

In terms of the EIA Regulations of 2010 and activities listed in GN No. 544 and 546 (requiring a Basic Assessment process) and GN No. 545 (requiring a S&EIR process), the following listed activities are deemed by the EAP to be applicable to the proposed chicken abattoir based on the information provided by the project proponent.

GN No & Activity Number		Activity Description
GN No. 544 of 18 June 2010	3	The construction of facilities or infrastructure for the slaughter of animals with a product throughput of: (i) poultry exceeding 50 poultry per day; or (ii) game and red meat exceeding 6 units per day.
	5	The construction of facilities or infrastructure for the concentration of: (i) more than 1 000 poultry per facility situated within an urban area, excluding chicks younger than 20 days (ii) more than 5 000 poultry per facility situated outside an urban area, excluding chicks younger than 20 days,

It must be noted that activities that the project triggers for environmental authorisation require a Basic Assessment process, however the waste management activities triggered as per the waste regulations, GN 718 of 2009 promulgated under the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) fall under category B of the regulations and, as such, require the undertaking of a Scoping and Environmental Impact reporting process. In light of this, SEF has requested in its application to the DEA that the application for environmental authorisation be upgraded to a S&EIR, so one process may be undertaken for both environmental and waste activities, as per regulation 20 (3) of the EIA regulations of 2010. Therefore, **this application shall undergo a S&EIR process.**

The aforementioned listed activities are deemed to include activities that could potentially have a detrimental impact on the social and biophysical state of an area and as such, are required to undergo an environmental impact assessment process.

In accordance with the EIA Regulations (2010), an EIR must contain all the information that is necessary for the competent authority to consider the application and to reach a decision and must include those points included in Section 31(2) of Regulation 543 which are laid out in the table below. In order to facilitate review by the competent authority, this report is structured around these requirements.

NEMA Regulation 543, Section 31 Requirements	Relevant Section of the Report
Details of the EAP who compiled the report and the expertise of the EAP to carry out an environmental impact assessment	Page vi – vii
A detailed description of the proposed activity	Section A
A description of the property on which the activity is to be undertaken and the location of the activity on the property.	Section A
A description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity.	Section B
Details of the public participation process conducted including: (i) Steps undertaken in accordance with the plan of study;	Section C-4

(ii) A list of persons, organisations and organs of state that were registered as interested and affected parties;	
(iii) A summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments; and	
(iv) Copies of any representations and comments received from registered and affected parties.	
A description of the need and desirability of the proposed activity	Section A-4
A description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity.	Section E
An indication of the methodology used in determining the significance of potential environmental impacts.	Appendix D
A description and comparative assessment of all alternatives identified during the environmental impact process.	Section E
A summary of the findings and recommendations of any specialist report or report on a specialised process.	Section G
A description of all environmental issues that were identified during the environmental impact assessment process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures.	Section F
An assessment of each identified potentially significant impact.	Section F
A description of assumptions, uncertainties and gaps in knowledge.	Section D
A reasoned opinion as to whether the 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 G
An environmental impact statement which contains a summary of the key findings and a comparative assessment of the positive and negative implications.	Section G
A draft environmental management programme	Appendix 8
Copies of any specialist reports and reports on specialist processes.	Appendix 6
Any specific information that may be required by the competent authority.	Project Summary

A-2.2 National Waste Act, 2008 (Act No. 59 of 2008)

The NEMWA aims at promoting sustainable waste management practices through the implementation of “Integrated Waste Management Planning”, where “Integrated Waste Management Planning is viewed as a holistic approach of managing waste, aimed at optimising waste management practises to ensure that the implementation thereof yields practical solutions that are environmentally, economically and socially sustainable and acceptable to the public and all relevant spheres of government”. In terms of General Notice 718 of 2009, the following listed activities have been deemed by the EAP to be applicable to the proposed chicken abattoir based on the information provided by the project proponent.

GN No & Activity Number		Activity Description
GN No. 718 of 3 July 2009	A1	The storage, including the temporary storage, of general waste at a facility that has the capacity to store in excess of 100m ³ of general waste at any one time, excluding the storage of waste in lagoons
	B5	The treatment of hazardous waste using any form of treatment regardless of the size or capacity of such a facility to treat such waste
	B7	The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more
	B11	The construction of facilities for activities listed in Category B of this schedule (not in isolation to associated activity)

NB: At the time of submission of the waste license application, GN 718 of 2009 was applicable. It should, however, be noted that the list of waste management activities was amended on 29 November

2013 (Government Gazette 37083). Applications that are currently in the system do not require re-application. However, waste licenses will be issued in accordance with the new regulations and activities no longer listed will be required to comply with the published norms and standards applicable to the activity.

A-2.3 National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in responsible ways.

Of specific importance to this application is Section 19 of the NWA, which states that an owner of land, a person in control of land or a person who occupies or uses the land which thereby causes, has caused or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring and must therefore comply with any prescribed waste standard or management practices.

Depending on the confirmation of the water requirements for the operation of the proposed facility, the Zeerust Chicken Abattoir may require an authorisation from the Department of Water Affairs under Section 21:

- (a) taking water from a water resource
- (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
- (g) disposing of waste in a manner which may detrimentally impact on a water resource;

Accordingly, the proposed chicken abattoir may thus require a water use licence, which is administered by the Department of Water Affairs (DWA).

A-2.4 Other Legal Requirements

A-2.4.1 Acts

Constitution of the Republic of South Africa

The Constitution of the Republic of South Africa has major implications for environmental management. The main effects are the protection of environmental and property rights, the change brought about by the sections dealing with administrative law, such as access to information, just administrative action and broadening of the locus standing of litigants. These aspects provide general and overarching support and are of major assistance in the effective implementation of the environmental management principles and structures of the NEMA. Section 24 in the Bill of Rights of the Constitution specifically states that:

Everyone has the right -

- To an environment that is not harmful to their health or well-being; and
- To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -
 - Prevent pollution and ecological degradation;
 - Promote conservation; and
 - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

This Act is applicable to this application for environmental authorisation, in the sense that it requires the project applicant to consider the protection and management of local biodiversity. To this end, an ecological assessment is being undertaken to assess the flora and fauna on site.

National Heritage Resources Act, 1999 (Act No. 25 of 1999)

This Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares (ha) and where linear developments (including roads) exceed 300 metres in length. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA). To this end, a phase 1 heritage impact assessment will be conducted for the proposed project.

Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)

The Act recognises that everyone has a Constitutional right of access to any information held by the state and by another person when that information is required to exercise or protect any rights. The purpose of the Act is to foster a culture of transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their rights

Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)

To provide for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

Animal Health Act, 2002 (Act No. 7 of 2002)

The Act was instituted to provide measures for the promotion of animal health and for the control of animal diseases. The Act further regulates animal imports and exports, establishes animal health schemes and makes provision for further matters that may be connected with animal health.

Agricultural Product Standards Act, 1990 (Act No. 119 of 1990)

The purpose of the Act is to control the sale and export of selected agricultural goods or products, the sale of certain imported agricultural products and it provides for control over any other related agricultural products.

Meat Safety Act, 2000 (Act No. 40 of 2000)

The Act promotes meat safety and makes provisions for the establishment of abattoirs and specifies standards for the operation of abattoirs. Broiler-processing regulations published in Government Notice No. 153 of 24 February 2006 may be read in conjunction with the Meat Safety Act.

Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

The OHS Act provides practical guidelines for the health and safety of workers as well as people in connection with plants and machinery. It also provides guidelines for the protection of people other than people at work against hazards that may arise out of a connection with the activities of persons at work. Together with the OHS Act, twenty-one other regulations have been published that outline specifications and requirements in different area which they govern. These regulations include health related regulations, general regulations, electrical regulations, machinery regulations, and specific regulations for certificates of competency, diving, explosives, major hazard installation and hazard work by children.

A-2.4.2 Provincial Policies and/or Guidelines

Integrated Environmental Management (IEM)

IEM is a philosophy for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development (DEAT, 1992). The IEM guidelines intend encouraging a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels.

The DEA Integrated Environmental Management Information Series guidelines are also considered during this S&EIR application process.

National Spatial Biodiversity Assessment, 2011

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

Protected Species – Provincial Ordinances

Provincial ordinances were developed to protect particular plant species within specific provinces. The protection of these species is enforced through permitting requirements associated with provincial lists of protected species. Permits are administered by the Provincial Departments of Environmental Affairs.

A-3 DETAILS OF THE APPLICANT

The details of the project applicant are:

Name of Applicant	Postal Address	Relevant Numbers
Mr Crosby Maema (on behalf of the Ramotshere Moiloa Local Municipality)	P O Box 92, Zeerust, 2865	Tel: 018 642 1081 Fax: 018 642 3586 E-mail: neo.lemme@ramotshere.gov.za

A-4 NEED AND DESIRABILITY OF THE PROJECT

According to the South African Poultry Association (www.sapoultry.co.za), more poultry products are consumed in South Africa than all other animal-protein sources combined on an annual basis, with the poultry industry dominating the South African agricultural sector. This indicates a huge demand for poultry products in the domestic market and further indicates the contribution of the poultry industry to the Gross Domestic Product (GDP) of South Africa. The North West province produces approximately 24% of broilers in the country which translates to approximately 25 – 26 million broiler birds bred or reared in the province annually. The total number of poultry abattoirs registered with the National Department of Agriculture is approximately 38, with two (2) abattoirs listed in the Zeerust area.

The opportunity for the development of a chicken abattoir in the Zeerust Industrial area was identified by the North West Department of Economic Development, Environment, Conservation and Tourism (NW-DEDECT) in conjunction with the Ramotshere Moiloa Local Municipality (RMLM). It was brought about by the availability of **emerging** broiler producers in the area and the lack of abattoir facilities and formal markets to which they have access.

Thus the initiative was formulated and it is envisaged that this project will be a community-based project that will be managed by a cooperative which shall include representatives of broiler producers and a management team to be established at the outset of the operational phase.

It is anticipated that the proposed development will provide a facility for emerging broiler producers in the area and will, further, create 46 employment opportunities for the local community. The indirect benefits of the project will include the local economic growth as a result of the establishment of a viable and sustainability industry.

SECTION B: THE RECEIVING ENVIRONMENT

In order to, with any level of confidence, assess the potential impacts of the proposed chicken abattoir on the receiving environment, one need to first assess the baseline conditions found over the study area. Using this *Status Quo* one can then, broadly speaking, determine the likely impacts that will emanate from a specific development typology on a well-defined receiving environment.

B-1 BIOPHYSICAL ENVIRONMENT

B-1.1 Geology and Geotechnical Suitability

The geology of the area consists of Pretoria shale, slate, hornfels and quartzite with diabase sills in certain areas. The sediments are of the Pretoria Group which also may consist of carbonates, volcanic rocks, breccias and diamictites (Mucina and Rutherford, 2006).

B-1.2 Soils and Agricultural Potential

Only the savanna and grassland biome types are recognised within the North West province with approximately 71% of the province covered in Savanna-type vegetation with associated bushveld vegetation (de Villier and Mangold, 2002). The Bankenveld area consists of portions of Zeerust, Marico, Rustenburg and Brits. The Bankenveld vegetation consists of sparse, sour and strongly tufted veld. The area is further classified by open Savannah of *Acacia erioloba* and grasses (from Acocks, 1975).

Red-yellow apedal soils dominate the landscape and are freely draining soils. They may have a high base status with some vertic or melanic clays (Mucina and Rutherford (2006). There are no known dunes and the soil is generally deep (>300mm). The soil is considered to be of intermediate suitability for arable agriculture in regions where the climate may permit agriculture.

B-1.3 Topography and Hydrology

B-1.3.1 Topography and Hydrology

The Zeerust area falls within the Savanna Biome, with the area categorised in the Zeerust Thornveld vegetation unit as per Mucina and Rutherford (2006). Topography of the North West Province is considered to be the most uniform terrain of all the provinces with an altitude range of 920 – 1782 m. However, the areas to the east and north-east of Zeerust have a more variable landscape that gives rise to the Magaliesberg Mountain range (de Villiers and Mangold, 2002).

The hydrology of the region is considered to be a critical and severely limiting factor in the province. Water in the province consists of surface water resources, groundwater, imported water and re-usable effluent. The province has very few perennial rivers and surface water runoff as a percentage of precipitation accounts for only 1% of water in the west of the province and about 7% in the eastern regions of the province. The Limpopo, Vaal and Orange rivers fall partly within the boundaries of the province (de Villiers and Mangold, 2002).

B-1.4 Climate and rainfall

The North West province is considered as a summer rainfall area with very dry winters with fairly frequent frost in winter (Mucina and Rutherford, 2006). The province has a great variation in terms seasonal and daily temperatures with the average daily summer temperature in the range of 32°C and the average daily minimum

in winter of 0.9°C.

As per the North West State of the Environment Report produced in 2002 by de Villiers and Rutherford, the town of Zeerust falls on the border of two rainfall zones, namely the 400 – 500mm zone and the 500 – 600mm zone, indicating a higher level of precipitation as compared to the western region of the province. Mean precipitation for Zeerust is in the region of 600mm with highs of approximately 1002mm and minimums of 390mm. The mean relative humidity recorded is 69 for January and 36 for July.

The North West State of Environment report (2002) indicates a lack of data available for the wind direction and speed in the region. However, the prevalent wind direction is from a northerly direction and the windy months are considered to be between August and November.

B-1.5 Flora and Fauna

An ecological assessment concentrating on identifying floral and faunal species was undertaken in December 2013 and has informed the assessment and mitigation section of this report. The ecological assessment described two distinguishable vegetation structures, i.e. rocky areas and disturbed woodland. The vegetation type was recognised as Zeerust Thornveld. The site was found to be dominated by indigenous vegetation with one plant species of conservation concern, *Crinum macowanii*, and two provincially protected plant species, i.e. *Aloe zebrina* and a *Gladiolus sp.* recorded. Faunal activity was deemed to be very low which could be due to the small size of the site and the constant human presence. However, one species of conservation concern, *Coracias garrulus* (European roller) was thought to have a high probability of occurrence.

From initial desktop analyses, the North West Province Biodiversity Conservation Assessment indicates that the study area is located in a category 1 Critical Biodiversity Area. However, despite the domination of indigenous vegetation, the site was not considered to be in a pristine condition as there was an infiltration of domestic refuse, alien plant infestations and human activities impacting on the site.

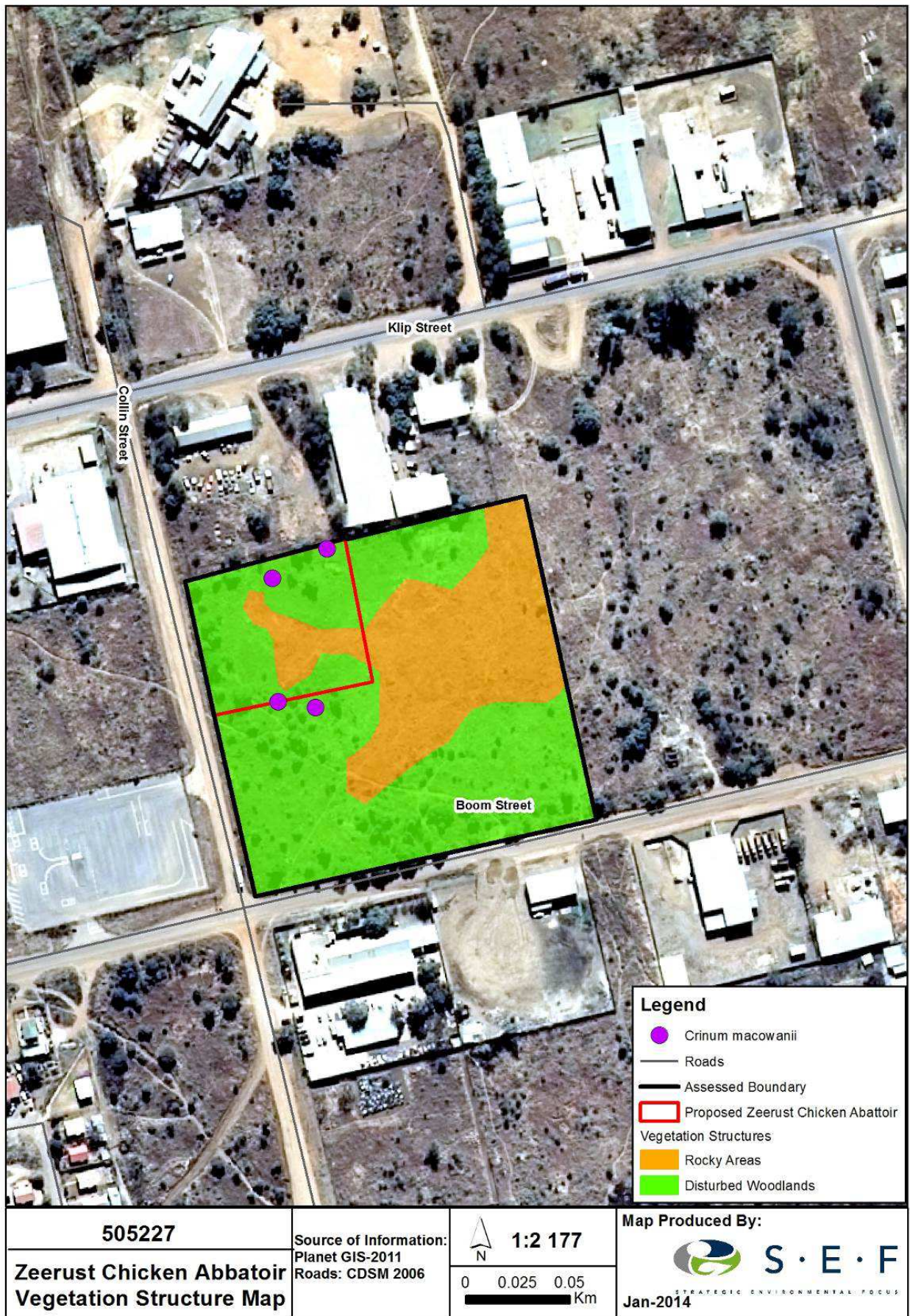


Figure 3: Vegetation structure map

SOCIAL ENVIRONMENT

B-1.6 Visual

Scenic value can be described as the reaction to aesthetics of the environment as perceived by an individual or a group and therefore it is a very subjective perception. In terms of the proposed project, the area (Erf 1017) assigned by the RMLM for the establishment of the chicken abattoir is located within the Zeerust industrial district. In terms of the surrounding landscape compatibility, the proposed abattoir will fit into the industrial landscape. The visual receptors in the area will consist of people currently utilising the area in terms of the industry already established. A large part of the surrounding areas immediately adjacent to the site are currently vacant.

B-1.7 Heritage

As per the National Heritage Resources Act, 1999 (Act No. 25 of 1999), a Phase 1 Heritage Impact Assessment (HIA) has been undertaken by A Pelser Archaeological Consulting, due to the size of the development exceeding 0.5 ha. The results of the HIA indicate that no objects of any cultural (archaeological or historical) origin or significance were found on site. Although no objects of heritage importance was identified during the impact assessment, it should be noted that the possibility of unearthing archaeological or historical features or objects is always present. Should any such features be identified during the construction or development process, activities on site will have to cease and a heritage specialist should be brought in to further investigate the objects or features and provide guidance as to how the development may proceed (A. Pelser, 2014).

B-1.8 Noise

Noise control must form part of the planning stage of any development. During the construction phase, noise may be generated as a result of construction related activities such as: the use of machinery and equipment, and the movement of construction vehicles etc. These potential noise impacts must be mitigated, where possible. The impacts of noise have been outlined in the impact assessment component of this report and mitigation measures specified. Noise impact will further be considered in terms of the operational activities of the abattoir but may be considered as minimal given the establishment of the abattoir in a zoned industrial area.

B-1.9 Air Quality

Vehicles travelling on exposed surfaces, earthworks as well as wind are the main generators of dust. The nuisance and aesthetic impacts associated with the dust generated during the construction phase should be minimal, if mitigating measures are implemented.

During the operational phase of the project, the impact to air quality will be considered in terms of the effects and impacts of the odour that may proliferate into the surrounding environment. The anticipated odour may emanate from the temporary storage of carcasses, the storage of waste material not suitable for consumption or, alternatively, from the excessive use of chemical cleaners that may be used to mask other odours.

This has been assessed in the impact assessment portion of this report and mitigating measures have been recommended. It should, however, be noted that the odour from abattoirs is generally associated with facilities that landfill the waste generated on site. This will not be the case with the proposed abattoir, as an adequately equipped waste management facility will treat waste water generated on site and all hazardous waste generated on site will be temporarily stored and disposed of with a licensed disposal company.

B-1.10 Socio Economic

Following the acceptance of the final scoping report, the DEA requested that a social assessment be undertaken. As such, a social impact assessment (SIA) was undertaken in February 2014. The SIA provided an assessment of the social baseline conditions, an identification of social change processes and an assessment of impact with mitigation. The identified impacts have informed the impact section of this EIA report. The SIA is meant to be used as a tool that can assist decision-making authorities in ascertaining the social, environmental and economic sustainability of a proposed project.

The SIA for the Zeerust chicken abattoir provided baseline data for the Ramotshere Moiloa Local Municipality including regional demographic information, population and household profiles, population group and age statistics, education level statistics, employment and labour profiles and services and infrastructure profiles. The employment and labour profile indicated that the unemployment rate in the RMLM IN 2011 was 32.8%, which was in excess of the North West average of 22.3% in the same year.

The SIA was not able to identify any fatal flaws in the project from a socio-economic perspective. It found a lack of municipal services in the area, which was raised as a point of concern. It was recommended that the project proponent contribute to the development of the area by providing assistance by way of maintenance of roads in the immediate vicinity and assist with refuse removal of waste generated on site to a registered landfill site, amongst others. It further recommends the development of an odour management plan to curb and manage odours generated by the abattoir. The SIA also provides a list of guidelines and mitigation measures which address the use of local labour, community policing, local material use in the construction phase, consultation with landowners, road upgrades, local job creation and the management of the abattoir.

SECTION C: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

C-1 APPROACH TO THE EIA

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

The EIA for this project complies with the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) [NEMA] and the NEMA EIA Regulations, 2010 of the DEA. The guiding principles of an EIA are listed below.

Definition of the term “environment”

The term “environment” is used in the broadest sense in an environmental impact assessment. It covers the physical, biological, social, economic, cultural, historical, institutional and political environments.

C-2 GUIDING PRINCIPLES FOR AN EIA

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

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

The eight guiding principles that govern the entire process of EIA are as follows (see Figure 2 below):

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

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

- Identify potential environmental impacts;
- Examine the significance of environmental implications;
- Assess whether impacts can be mitigated;

- Recommend preventive and corrective mitigating measures;
- Inform decision makers and concerned parties about the environmental implications; and
- Advise whether development should go ahead.

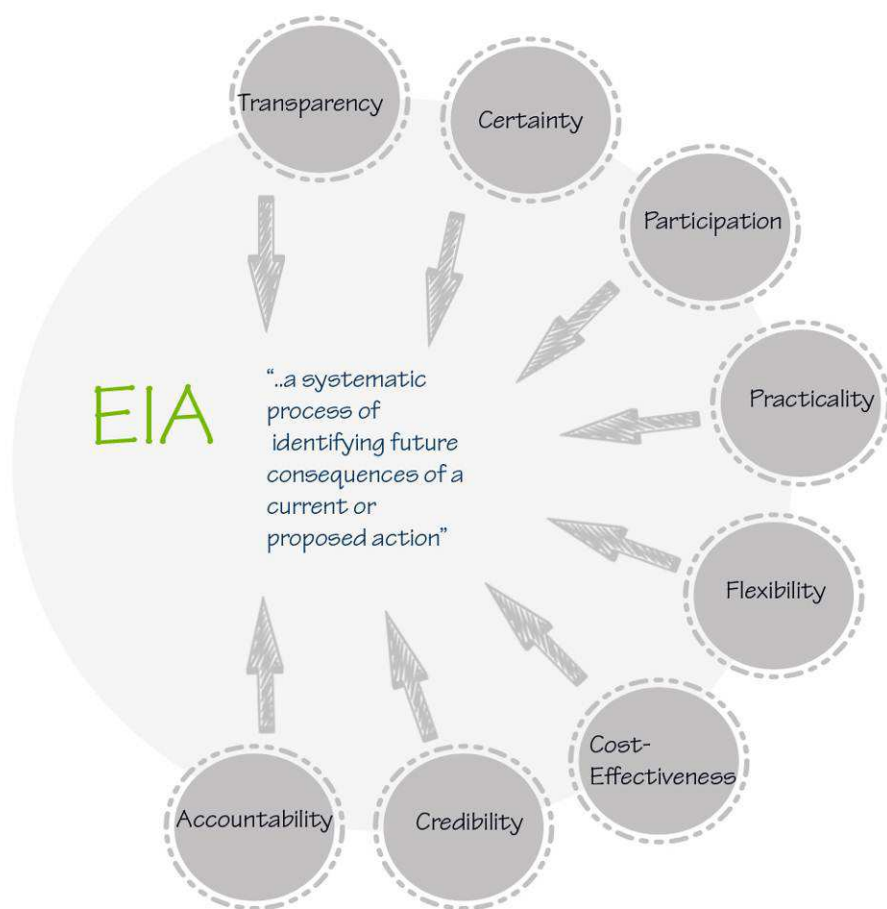


Figure 4: The eight guiding principles for the EIA process

A S&EIR process typically has four phases, as illustrated in the Figure 3 below. The Public Participation process forms an integral part of all four phases and is discussed in greater detail in Section C – 4 of this final Scoping Report.

C-3 S&EIR TECHNICAL PROCESS

This section provides a summary of the technical process to be followed for this S&EIR process.

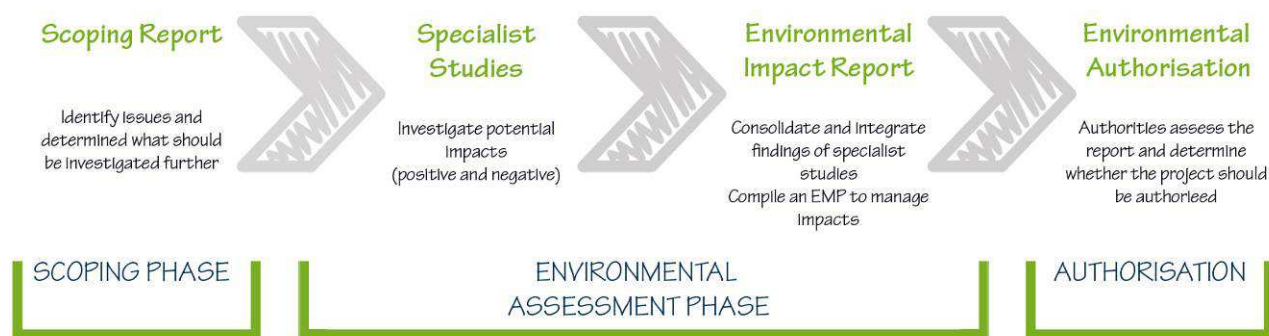


Figure 5: Flow diagram of the Scoping and EIR process

C-3.1 Pre-application Consultation with the DEA

No pre-consultation meeting was held between SEF and DEA, however SEF did communicate with the DEA via e-mail for confirmation that the application may be submitted to the DEA, as the main funding body for this project is the North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT). Details of this communication are presented in Appendix 4.

C-3.2 Application for Authorization

The application form informing the Department of intent to obtain an integrated environmental authorisation and a waste management license was submitted to the DEA on 31 July 2013. This project was subsequently assigned the reference number **14/12/16/3/3/3/89**.

C-3.3 Information Gathering

Early in the EIA process, the technical specialists identified the information that would be required for the impact assessment and the relevant data was obtained. In addition, the specialists sourced available information about the receiving environment from reliable sources, I&APs, previous documented studies in the area and previous EIA Reports. The acceptance of the scoping report by the DEA highlighted further conditions and requests for specialist studies for the DEA to make an informed decision.

C-3.4 Specialist Studies

The following specialist studies were identified to be undertaken during the EIR phase:

- Ecological Assessment; and
- Phase 1: Heritage Impact Assessment;

Further to the letter of acceptance of the final scoping report from the DEA, the following specialist study has been undertaken:

- Social Impact Assessment

C-4 PUBLIC PARTICIPATION PROCESS

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

The principal objective of public participation is thus to inform and enrich decision-making. This is also the key role in the EIR phase of the process.

C-4.1 Identification of Interested and Affected Parties

I&APs representing the following sectors of society have been identified in terms of Regulation 55 of the EIA Regulations R543 of 2010 (see Appendix 5 for a complete preliminary I&AP distribution list):

- Provincial Authorities;
- Local Authorities;
- Ward Councillors;
- Parastatal/ Service Providers;
- Non-governmental Organisations;
- Local forums/ unions; and
- Adjacent Landowners.

C-4.2 Public Announcement of the Project

The project was announced on **23 August 2013** in the following manner (see **Appendix 5** for public announcement documentation):

- Publication of media advertisements in a local newspaper (The Zeerust News);
- On-site notices advertising the S&EIR process were placed on and around the site, as well as in the public venue (The Zeerust Public Library) where reports are made available for review and comment; and
- Distribution of letters by fax/ by hand/ post/ email to I&APs including Registration and Comment Sheets.

C-4.3 Draft Scoping Report

I&APs and relevant State Departments have had the opportunity to raise issues either in writing, by telephone or email on the Draft Scoping Report for a period of 40 days (from **23 August 2013** until **3 October 2013**). The availability of the Draft Scoping Report has been announced by means of personal letters to all the registered I&APs on the distribution list, and by adverts placed in the abovementioned newspapers.

In addition, the Draft Scoping Report was distributed for comment as follows:

- Left in public venues (Zeerust Public Library);
- Hand-delivered/ couriered to the relevant authorities; and
- Posted on SEF's website at <http://www.sefsa.co.za>.

All the comments and concerns raised by I&APs during the S&EIR process is collated into a Comment and Response Report. An acknowledgement of receipt of comments is sent to the respective I&APs

acknowledging their contribution. During the above-mentioned period, no comments were received from potential I&APs.

C-4.4 Final Scoping Report

This Final Scoping Report was updated with comments and/or concerns raised by I&APs during public review of the Draft Scoping Report. The final Scoping Report was submitted to the DEA and registered I&APs simultaneously for review and comment for a period of **30 calendar days (11 October 2013 – 11 November 2013)**. Registered I&APs were advised to submit any additional comments on this final Scoping Report directly to the DEA prior to the lapsing of the 30 day review period.

The Final Scoping Report (including the PoS for EIR) was submitted to the DEA on 11 October 2013. In a letter dated 18 November 2013, the DEA approved the Final Scoping Report and gave the authority to proceed with the EIR (refer to Appendix 4).

C-4.5 Draft Environmental Impact Report

The finding of the Impact Assessment Phase are presented in this Draft EIR and EMPr (including the specialist studies conducted) and is available for public review and comment.

A period of **40 calendar days (11 June 2014 – 23 July 2014)** has been provided to the **State Departments and Registered I&APs** for the review and commenting phase of the Draft Environmental Impact Report (EIR). The availability of the Draft EIR will be announced by means of personal letters to all the registered I&APs on the distribution list.

In addition, the Draft EIR will be distributed for comment as follows:

- Hand-delivered/ couriered to the relevant authorities; and
- Posted on SEF's website at <http://www.sefsa.co.za>.

All the comments and concerns raised will be captured in a CRR. I&APs will be sent letters acknowledging their contributions.

C-4.6 Final Environmental Impact Report

The EIR will be updated with comments and/or concerns raised by I&APs. The CRR will be attached to the Final EIR. The Final EIR will be submitted to the DEA and registered I&APs simultaneously for review. Registered I&APs will be advised to submit any additional comments on the Final EIR directly to the DEA for consideration towards an Environmental Authorisation.

SECTION D: ASSESSMENT CRITERIA

D-1 IMPACT IDENTIFICATION AND ASSESSMENT

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

D-1.1.1 Assessment Procedure: Proposed Impact Assessment Methodology

For the purpose of assessing impacts of the proposed development, during the EIR phase, the project will be divided into two phases from which impacting activities can be identified, namely:

Construction Phase:	All the construction related activities on site, until the contractor leaves the site.
Operational Phase:	All activities, including the operation and maintenance of the proposed development.

The activities arising from each of these phases will be included in the impact assessment tables. This is to identify activities that require certain environmental management actions to mitigate the impacts arising from them. The assessment of the impacts will be conducted according to a synthesis of criteria required by the integrated environmental management procedure.

Extent The physical and spatial scale of the impact.	Footprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
	Site	The impact could affect the whole, or a significant portion of the site.
	Regional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
	National	The impact could have an effect that expands throughout the country (South Africa).
	International	Where the impact has international ramifications that extend beyond the boundaries of South Africa.

Duration The lifetime of the impact, that is measured in relation to the lifetime of the proposed development.	Short Term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase.
	Short-Medium Term	The impact will be relevant through to the end of a construction phase.
	Medium Term	The impact will last up to the end of the development phases, where after it will be entirely negated.
	Long Term	The impact will continue or last for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter.
	Permanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
Intensity Is the impact destructive or benign, does it destroy the impacted environment, alters its functioning, or slightly alter the environment itself?	Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.
	Medium	The affected environment is altered, but functions and processes continue, albeit in a modified way.
	High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
Probability The likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time.	Improbable	The possibility of the impact occurring is none, due either to the circumstances, design or experience. The chance of this impact occurring is zero (0%).
	Possible	The possibility of the impact occurring is very low, due either to the circumstances, design or experience. The chances of this impact occurring is defined as 25%.
	Likely	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of this impact occurring is defined as 50%.
	Highly Likely	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75%.
	Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100%.

Mitigation – The impacts that are generated by the development can be minimised if measures are implemented in order to reduce the impacts. These measures ensure that the development considers the environment and the predicted impacts in order to minimise impacts and achieve sustainable development.

Determination of Significance – Without Mitigation – Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact “without mitigation” is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as “positive”. Significance will be rated on the following scale:

No significance: The impact is not substantial and does not require any mitigation action;

Low: The impact is of little importance, but may require limited mitigation;

Medium: The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels; and

High: The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

Determination of Significance – With Mitigation – Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures. Significance with mitigation will be rated on the following scale:

- No significance: The impact will be mitigated to the point where it is regarded as insubstantial;
- Low: The impact will be mitigated to the point where it is of limited importance;
- Low to medium: The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;
- Medium: Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw;
- Medium to high: The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels; and
- High: The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

Assessment Weighting – Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project’s life cycle. In order to establish a defined base upon which it becomes feasible to make an informed decision, it will be necessary to weigh and rank all the identified criteria.

Ranking, Weighting and Scaling – For each impact under scrutiny, a scaled weighting factor will be attached to each respective impact. The purpose of assigning such weightings serve to highlight those aspects considered the most critical to the various stakeholders and ensure that each specialist’s element of bias is taken into account. The weighting factor also provides a means whereby the impact assessor can successfully deal with the complexities that exist between the different impacts and associated aspect criteria.

Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance (Figure 6).

Extent	Duration	Intensity	Probability	Weighting Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0,2	Low 0-19
Site 2	Short to medium 2	Low to medium 2	Possible 2	Low to medium 2	Low to medium 20-39	Medium to high 0,4	Low to medium 20-39
Regional 3	Medium term 3	Medium 3	Likely 3	Medium 3	Medium 40-59	Medium 0,6	Medium 40-59
National 4	Long term 4	Medium to high 4	Highly Likely 4	Medium to high 4	Medium to high 60-79	Low to medium 0,8	Medium to high 60-79
International 5	Permanent 5	High 5	Definite 5	High 5	High 80-100	Low 1,0	High 80-100

Figure 6: Description of bio-physical assessment parameters with its respective weighting

Identifying the Potential Impacts Without Mitigation Measures (WOM) – Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).

Equation 1: Significance Rating (WOM) = (Extent + Intensity + Duration + Probability) x
Weighting Factor

Identifying the Potential Impacts With Mitigation Measures (WM) – In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact.

Mitigation Efficiency (ME) – The most effective means of deriving a quantitative value of mitigated impacts is to assign each significance rating value (WOM) a mitigation effectiveness (ME) rating. The allocation of such a rating is a measure of the efficiency and effectiveness, as identified through professional experience and empirical evidence of how effectively the proposed mitigation measures will manage the impact.

Thus, the lower the assigned value the greater the effectiveness of the proposed mitigation measures and subsequently, the lower the impacts with mitigation.

Equation 2: Significance Rating (WM) = Significance Rating (WOM) x Mitigation Efficiency
Or
WM = WOM x ME

Significance Following Mitigation (SFM) – The significance of the impact after the mitigation measures are taken into consideration. The efficiency of the mitigation measure determines the significance of the impact. The level of impact will, therefore, be seen in its entirety with all considerations taken into account.

D-1.1.2 Integration of Specialist's Input

In order to maintain consistency in the impact assessment, it is suggested that all potential impacts to the environment (or component of the environment under review) should be listed in a table similar to the example shown below (more than one table will be required if impacts require assessment at more than one scale). The assessment parameters used in the table should be applied to all of the impacts and a brief descriptive review of the impacts and their significance will then be provided in the text of the specialist reports and consequently in the EIR. The implications of applying mitigation are reviewed in Section D-1.2 below.

Table 4: Example of an Impact Table

Impact source(s)		Status	-
Nature of impact			
Reversibility of impact			
Degree of irreplaceable loss of resource			
Affected stakeholders			
Magnitude	<i>Extent</i>		
	<i>Intensity</i>		
	<i>Duration</i>		
	<i>Probability</i>		
Significance	<i>Without mitigation</i>		H
	<i>With mitigation</i>		L
Significance Following Mitigation (SFM)			

D-1.1.3 Mitigation Measures

Mitigation measures will be recommended in order to enhance benefits and minimise negative impacts and they will address the following:

- Mitigation objectives: what level of mitigation must be aimed at: For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an “educated guess” based on his/ her professional experience;
- Recommended mitigation measures: For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided;
- Effectiveness of mitigation measures: The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible; and
- Recommended monitoring and evaluation programme: The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives. Each environmental impact is to be assessed before and after mitigation measures have been implemented. The management objectives, design standards, etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits. National standards or criteria are examples, which can be stated as mitigation objectives.

Once the above objectives have been stated, feasible management actions, which can be applied as mitigation, must be provided. A duplicate column on the impact assessment tables described above will indicate how the application of the proposed mitigation or management actions has reduced the impact. If the proposed mitigation is to be of any consequence, it should result in a measurable reduction in impacts (or, where relevant, a measurable benefit).

D-1.2 Approach to the Assessment of Cumulative Impacts

Cumulative impacts can arise from one or more activities. A cumulative impact may result in an additive impact i.e. where it adds to the impact which is caused by other similar impacts or an interactive impact i.e. where a cumulative impact is caused by different impacts that combine to form a new kind of impact. Interactive impacts may be either countervailing (the net adverse cumulative impact is less than the sum of the individual impacts) or synergistic (the net adverse cumulative impact is greater than the sum of the individual impacts).

Possible cumulative impacts of the project will be evaluated in the EIR. In addition, various other cumulative impacts e.g. other external impacts that could arise from the project will be further investigated in the EIR phase of the project.

The assessment of cumulative impacts on a study area is complex; especially if many of the impacts occur on a much wider scale than the site being assessed and evaluated. It is often difficult to determine at which point the accumulation of many small impacts reaches the point of an undesired or unintended cumulative impact that should be avoided or mitigated. There are often factors which are uncertain when potential cumulative impacts are identified.

D-1.2.1 Steps in Assessing Cumulative Impacts

The assessment of cumulative impacts will not be done separately from the assessment of other impacts. Cumulative impacts however, tend to have different time and space dimensions and therefore require specific steps. This may even mean that some of the actions in the assessment process, that preceded general impact identification, may have to be revisited after potential cumulative impacts have been identified. This will ensure that the scope of the EIR process is adequate to deal with the identified cumulative impacts.

Three (3) general steps, which are discussed below, will be recommended to ensure the proper assessment of cumulative impacts.

D-1.2.2 Determining the Extent of Cumulative Impacts

To initiate the process of assessing cumulative impacts, it is necessary to determine what the extent of potential cumulative impacts will be. This will be done by adopting the following approach:

- Identify potentially significant cumulative impacts associated with the proposed activity;
- Establish the geographic scope of the assessment;
- Identify other activities affecting the environmental resources of the area; and
- Define the goals of the assessment.

D-1.2.3 Describing the Affected Environment

The following approach is suggested for the compilation of a description of the environment:

- Characterise the identified external environmental resources in terms of their response to change and capacity to withstand stress;
- Characterise the stresses affecting these environmental resources and their relation to regulatory thresholds; and
- Define a baseline condition that provides a measuring point for the environmental resources that will be impacted on.

D-1.2.4 Assessment of Cumulative Impacts

The general methodology which is used for the assessment of cumulative impacts should be coherent and should comprise of the following:

- An identification of the important cause-and-impact relationships between proposed activity and the environmental resources;
- A determination of the magnitude and significance of cumulative impacts; and
- The modification, or addition, of alternatives to avoid, minimize or mitigate significant cumulative impacts.

SECTION E: ALTERNATIVES

E-1 IDENTIFICATION OF ALTERNATIVES

The EIA procedures and regulations stipulate that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. During the EIR phase of the project, the identified alternatives will be assessed, in terms of environmental acceptability as well as socio-economic feasibility. To define the term alternatives as per Government Notice No. 543 of the NEMA EIA Regulations 2010 means:

“...in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to:

- (a) The property on which or location where it is proposed to undertake the activity;*
- (b) The type of activity to be undertaken;*
- (c) The design or layout of the activity;*
- (d) The technology to be used in the activity;*
- (e) The operational aspects of the activity; and*
- (f) The option of not implementing the activity.”*

The alternatives below will be further investigated during the EIR phase of the project:

E-1.1 Site/ Location Alternatives

Prior to the commencement of the environmental process, the CSIR ECD together with the applicant evaluated three (3) to four (4) potential sites for the development of the abattoir. The zoning of the land and the availability and connections to bulk services were considered during this process. As such the proposed location was allocated to the project by the RMLM no further site/ location alternatives will be investigated.

E-1.2 Layout/ Design Alternatives

The design and functioning of the abattoir is currently being developed by the CSIR ECD in conjunction with other consultants, i.e. architects for the design component. The design of the abattoir and waste management facility will bear in mind the principles of sustainable environmental management and will be designed to be as efficient and have as little impact as is reasonable. **However, to give effect to the principles of NEMA, the on-site treatment of waste from the abattoir vs. the off-site treatment thereof (by means of the RMLM infrastructure such as the municipal WWTW) is the only feasible alternative considered by the EIA Process.**

E-1.3 Process Alternatives

Process alternatives may be considered as the project progresses further in the design phase. Although job creation and local economic development remains a priority, technology alternatives for de-feathering of chickens and processing of chickens are being considered. Process alternatives may also only be implemented during the operational phase as the necessity to streamline processes become necessary, access to new technologies become available and further funding is available to invest in new technology. However, the inclusion of process alternatives cannot be included as an alternative as it would be premature.

E-1.4 No Development Alternative

This option assumes that a conservative approach would ensure that the environment is not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current condition of the area. Should the DEA decline the application, the 'No-Go' option will be followed and the status quo of the site will remain.

SECTION F: ASSESSMENT OF IMPACTS

F-1 IDENTIFIED IMPACTS

The following issues were identified in the Plan of Study and were investigated as assessed for the proposed development and the preferred alternatives (as discussed in Section E above):

Biophysical Impacts

- Potential impact on the soil profile
- Potential impact on the groundwater regime;
- Increased surface water runoff from cleared surfaces into the municipal system;
- Destruction of natural vegetation including species of conservation concern and disturbance of faunal species; and
- Spread of alien invasive plant species.

Socio-Economic Impacts

- Increased dust generation during the construction phase;
- Increased noise generation during the construction phase;
- Health considerations during operational phase;
- Impact of the odour from the abattoir operations;
- Waged labour / Employment creation and decrease in unemployment;
- Conversion and diversification of land use; and
- Capacity building and skills transfer;

F-2 IDENTIFIED CUMULATIVE IMPACTS

Cumulative impacts, as illustrated below, occur as a result from the combined effect of incremental changes caused by other activities together with the particular project. In other words, several developments with insignificant impacts individually may, when viewed together, have a significant cumulative adverse impact on the environment (see Figure 5 below).

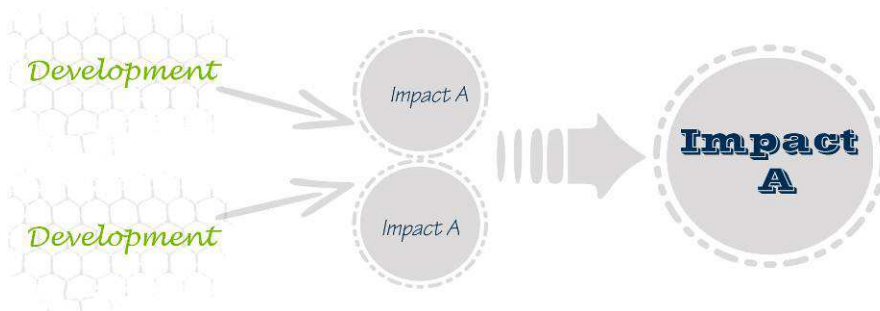


Figure 7: The identification of Cumulative Impacts

The following cumulative impacts have been identified in terms of the proposed development and warrant further investigation during the assessment phase:

- Increased visual impact associated with additional industry; and
- The impact of the odour of operations considered in context of other operations in the area.

F-3 IMPACT ASSESSMENT: CONSTRUCTION PHASE

F-3.1 Biophysical Environment

F-3.1.1 *Potential impact on the soil profile*

Source and nature of the impact

The clearance of vegetation for preparing the site for construction such as the construction of laydown areas and contractor's camps will increase the risk of damage to the soil profile. Spillages from construction activities also introduce a risk of contaminating the soil.

Table 5: Impact on the soil profile

Impact source(s)	Construction activities and the movement of construction vehicles		Status	-
Nature of impact	Contamination of soil			
Reversibility of impact	The impact is reversible through the implementation of good construction practices and adherence to the conditions outlined in the construction EMPr			
Degree of irreplaceable loss of resource	Low			
Affected stakeholders	Surrounding land owners			
Magnitude	<i>Extent</i>	Site – 2		
	<i>Intensity</i>	Low - Medium – 2		
	<i>Duration</i>	Short – Medium Term – 2		
	<i>Probability</i>	Possible		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(2+2+2+2) \times 2 = 16$ Low		L
	<i>With mitigation</i>	$WOM \times ME = WM$ $16 \times 0.6 = 9.6$ Low		L

Mitigation measures

- All construction vehicles should be kept in good working condition.
- All construction vehicles should be parked in demarcated areas when not in use and drip trays should be placed under vehicles to collect any spillages/ leaks.
- If hydrocarbon spills occur these should be cleaned using SUNSORB (or similar product) and the contaminated soils removed from site and disposed of at an appropriate registered landfill site.
- Appropriate stormwater management plan to be implemented prior to construction.
- Physical removal of vegetation is preferred over the chemical removal of vegetation to minimise contamination of soil.

Significance of the impact

Due to the nature of the impact (as described above), the significance of this impact with or without mitigation, is regarded to be low. Implementation of the mitigation measures will decrease the significance of the impact.

F-3.1.2 *Ground water contamination*

Source and nature of the impact

Hydrocarbons (oil, petrol and diesel) and other chemicals/ liquids will be required during the construction phase. Spills and/or leakages could occur from construction vehicles and/or equipment. These spills could contaminate the ground water should they occur simultaneously with a heavy rainfall event and could adversely affect surrounding landowners who utilise groundwater resources.

Table 6: Ground water contamination

Impact source(s)	Hydrocarbon and other chemical spillages	Status	-
Nature of impact	Contamination of ground water during heavy rainfall events		
Reversibility of impact	The impact is reversible by containing and clearing spills as and when they occur by means of an appropriate spill kit.		
Degree of irreplaceable loss of resource	Low		
Affected stakeholders	Surrounding land owners		
Magnitude	<i>Extent</i>	Region -3	
	<i>Intensity</i>	Medium – 3	
	<i>Duration</i>	Short – Medium Term – 2	
	<i>Probability</i>	Possible – 2	
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+3+2+2) \times 3 = 30$ Low to Medium	L - M
	<i>With mitigation</i>	$WOM \times ME = WM$ $30 \times 0.4 = 12$ Low	L

Mitigation measures

- Construction should preferably take place during the dry season.
- All construction vehicles should be kept in good working condition.
- All construction vehicles should be parked in demarcated areas when not in use and drip trays should be placed under vehicles to collect any spillages/ leaks.
- Appropriate stormwater management plan to be implemented prior to construction.
- If hydrocarbon spills occur these should be cleaned using SUNSORB (or similar product) and the contaminated soils removed from site and dispose of at an appropriate registered landfill site.

Significance of the impact

The significance of this impact is regarded as low to medium without mitigation; however, if spillages are effectively mitigated to reduce the likelihood of ground water contamination, the significance will be reduced to low.

F-3.1.3 Increased surface water runoff**Source and nature of the impact**

The clearance of vegetation to make way for the construction of the abattoir and associated infrastructure, such as the waste water treatment works, as well as the increase of paved surfaces will result in an increase in stormwater runoff and increased velocity of runoff.

Table 7: Increased surface water runoff

Impact source(s)	Construction of infrastructure and development of impermeable surfaces	Status	-
Nature of impact	Increased surface water runoff and increased velocity of runoff		
Reversibility of impact	The impact is not reversible but can be reduced with the implementation of appropriate mitigation measure		
Degree of irreplaceable loss of resource	Low		
Affected stakeholders	Surrounding land owners		
Magnitude	<i>Extent</i>	Region – 3	
	<i>Intensity</i>	Medium - 3	
	<i>Duration</i>	Short – Medium Term – 2	
	<i>Probability</i>	Likely – 3	

Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+3+2+3) \times 3 = 33$ Low-Medium	L-M
	<i>With mitigation</i>	$WOM \times ME = WM$ $33 \times 0.6 = 19.8$ Low - medium	L - M

Mitigation measures

- Total sealing of paved areas such as parking lots, driveways, pavements and walkways should not be permitted. Permeable material should rather be utilized for these purposes to minimise runoff.
- Implementation of an ecologically-sensitive stormwater management plan should be contemplated.

Significance of the impact

While the significance of this impact is regarded as low to medium with or without mitigation, the implementation of mitigation measures outlined in this report and in the construction EMP should reduce the impact.

F-3.1.4 Destruction of natural vegetation including species of conservation concern and the disturbance of faunal species

Source and nature of the impact

The construction of the proposed chicken abattoir will cause the destruction of indigenous vegetation. Although the study area was not considered to be in a pristine condition it supported indigenous vegetation with at least one plant species of conservation concern as well as two provincially protected plant species recorded within the wider area. The construction of the proposed chicken abattoir is also likely to disturb faunal species within the study area as well as the immediate surroundings. Although mammal activity was considered very low, higher avifaunal (bird) activity was recorded. The destruction of the natural vegetation within the study area will therefore impact on avifaunal foraging habitat.

Table 8: Destruction of natural vegetation including species of conservation concern

Impact source(s)	Vegetation clearance for construction of the abattoir		Status	-
Nature of impact	Floral species included those of conservation concern will be lost and faunal species will be disturbed			
Reversibility of impact	The loss of vegetation can be partially reversed should appropriate measures be taken to re-vegetate areas on site subsequent to construction with indigenous vegetation.			
Degree of irreplaceable loss of resource	Medium			
Affected stakeholders	N/A			
Magnitude	<i>Extent</i>	Footprint – 1		
	<i>Intensity</i>	Medium to High – 4		
	<i>Duration</i>	Permanent – 5		
	<i>Probability</i>	Definite – 5		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(1+4+5+5) \times 3.5 = 52.5$ Medium		M
	<i>With mitigation</i>	$WOM \times ME = WM$ $52.5 \times 1 = 52.5$ Medium		M

Mitigation measures

- The area which will be impacted on by the proposed development should be fenced off and no people or vehicles should be allowed into the natural areas surrounding the construction area;
- Building material, ablution facilities or construction vehicles should not be stored in areas containing

- natural vegetation but the disturbed areas adjacent to the study area should be used; and
- Since the area surrounding the study area supported similar species as the study area, the relocation of the provincially protected plant species *Aloe zebrina* and *Gladiolus sp.* is not recommended. However, if any landscaping is considered around the proposed development, the indigenous species which have been recorded within the study area should be used, especially *Aloe zebrina* since the survival rate of transplanted individuals of this species is generally high.
- Areas which have been disturbed during the construction phase should be rehabilitated with indigenous vegetation recorded within the study area. Species such as *Aloe zebrina* is not only an important food source for various avifaunal and invertebrate species but can also be used as an effective soil binder during the rehabilitation process; and
- It is recommended that artificial roosting and nesting sites such as bat boxes and owl nesting boxes are erected within the natural areas surrounding the development.

Significance of the impact

Crinum macowanii (currently listed as Declining) has a very low relocation success and therefore relocation of this species is not considered a suitable mitigation measure. Destruction of these species will require a permit from the North West DEDECT. Due to the large scale removal of vegetation to make space for the development, this impact is regarded as medium to high without mitigation. Implementation of mitigation measures will not have a measurable effect on the impact.

F-3.1.5 Spread of alien invasive plant species

Source and nature of the impact

Two of the alien plant species namely *Melia azedarach* (syringa) and *Opuntia ficus-indica* (prickly pear) which were recorded within the study area have the potential to spread rapidly and form dense infestations especially when natural vegetation is disturbed. It is therefore recommended that these species are eradicated from the study area as well as the surrounding natural vegetation. It should also be noted that *M. azedarach* (syringa) produces copious amounts of seed and follow-up control will be essential in the successful eradication of this species

Table 9: Spread of alien invasive plant species

Impact source(s)	Clearance of vegetation for construction of abattoir and associated infrastructure	Status	-
Nature of impact	Spread of alien invasive plants		
Reversibility of impact	The implementation of appropriate mitigation measures may reverse some of the impact		
Degree of irreplaceable loss of resource	Medium		
Affected stakeholders	N/A		
Magnitude	<i>Extent</i>	Site -2	
	<i>Intensity</i>	High – 5	
	<i>Duration</i>	Permanent – 5	
	<i>Probability</i>	Likely – 3	
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(2+5+5+3) \times 3 = 45$ Medium	M
	<i>With mitigation</i>	$WOM \times ME = WM$ $45 \times 0.4 = 18$ Low	L

Mitigation measures

- During construction, the construction area and immediate surroundings should be monitored

- regularly for emergent invasive vegetation;
- Surrounding natural vegetation should not be disturbed to minimize chances of invasion by alien vegetation;
 - All alien seedlings and saplings must be removed as they become evident for the duration of construction and operational phase;
 - Manual / mechanical removal is preferred to chemical control;
 - All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction site. This should be verified by the ECO;
 - An alien invasive eradication and monitoring plan must be compiled and implemented whereby all emergent invasive species are removed during construction. The monitoring plan must also ensure that the re-emergence of invasive species is monitored continuously during the operational and decommissioning phases and that monitoring and eradication continues post decommissioning.

Significance of the impact

This impact is regarded as high without mitigation, but with the implementation of suitable mitigation measures, the effects of this impact may be reduced.

F-3.2 Socio-economic Environment

F-3.2.1 Increase in ambient dust levels

Source and nature of the impact

Construction activities, such as transportation vehicles travelling on exposed surfaces, earthworks as well as wind, will result in elevated ambient dust levels within the area. Increased dust levels may adversely affect persons working and/or residing in the nearby area.

Table 10: Increase in ambient dust levels

Impact source(s)	Transportation vehicles travelling over exposed surfaces, earthworks and the wind	Status	-
Nature of impact	Increased levels of ambient dust		
Reversibility of impact	The impact is irreversible but can be mitigated to a large extent		
Degree of irreplaceable loss of resource	Low		
Affected stakeholders	Surrounding land owners		
Magnitude	<i>Extent</i>	Regional -3	
	<i>Intensity</i>	Medium – 3	
	<i>Duration</i>	Medium Term – 3	
	<i>Probability</i>	Highly likely – 4	
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+3+3+4) \times 4 = 52$ Medium	M
	<i>With mitigation</i>	$WOM \times ME = WM$ $52 \times 0.6 = 31.2$ Low to Medium	L - M

Mitigation Measures

- Appropriate dust suppression methods must be applied.
- Exposed soil stockpiles shall be covered, kept damp or protected using organic binding agents or alternative techniques that are not water intensive.
- The clearing of vegetation must be kept to a minimum and only where required.
- Avoid unnecessary movement of construction vehicles.

- Vehicles travelling on un-surfaced roads must travel at a speed that creates minimal dust entrainment.

Significance of the impact

The significance of this impact, without mitigation, is regarded to be medium. Implementation of the mitigation measures will decrease the significance of the impact to low - medium.

F-3.2.2 Increase in ambient noise levels

Source and nature of the impact

Construction activities and movement of construction vehicles will increase the ambient noise levels within the area during the construction phase. This may impact on adjacent landowners as well as sensitive faunal species within the study area.

Table 11: Increase in ambient noise levels

Impact source(s)	Construction activities		Status	-
Nature of impact	Increased level of ambient noise			
Reversibility of impact	The impact is irreversible but can be mitigated to a large extent			
Degree of irreplaceable loss of resource	Low			
Affected stakeholders	Surrounding land owners			
Magnitude	<i>Extent</i>	Regional -3		
	<i>Intensity</i>	Low – 1		
	<i>Duration</i>	Medium term – 3		
	<i>Probability</i>	Highly likely – 4		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+1+3+4) \times 3 = 33$ Low to Medium		L-M
	<i>With mitigation</i>	$WOM \times ME = WM$ $33 \times 0.6 = 19.8$ Low		L

Mitigation measures

- Construction times must be restricted to working hours (06:00 – 18:00).
- Noise reduction is essential and contractors must endeavour to limit unnecessary noise, especially loud talking, shouting or whistling, radios, sirens or hooters, motor revving, etc. The use of silent compressors is a specific requirement.
- The conditions as set out in the Occupational Health and Safety Act No. 85 of 1993 must be adhered to be the contractor, especially where noise levels will exceed 85 Db.
- The EO must inform the residents of houses and businesses adjacent to the development in writing 24 hours prior to any planned activities that will be unusually noisy or any other activities that could reasonably have an impact on the adjacent sites. These activities could include, but are not limited to, blasting, piling, use of pneumatic jack-hammers and compressors, bulk demolitions, etc.
- All construction equipment or machinery should be switched off when not in use.
- Construction equipment must be kept in good working condition.

Significance of the impact

Due to the limited number of noise receptors (adjacent landowners) and the development being undertaken in a zoned industrial area, the impact associated with increased ambient noise levels during the construction phase is predicted to be of a low to medium significance; however the implementation of mitigation measures will reduce the significance of the impact to low.

F-4 IMPACT ASSESSMENT: OPERATIONAL PHASE

F-4.1 Biophysical Environment

F-4.1.1 *Soil contamination*

Source and nature of the impact

The possibility of spillages from the on-site waste water treatment works (WWTW) or the temporary storage area that will hold waste such as blood and condense may lead to soil contamination

The release of grey water into the environment, especially for irrigation should be carefully controlled to prevent contamination of the environment.

Table 12: Soil contamination

Impact source(s)	Possible spillages from the WWTW		Status	-
Nature of impact	Contamination of the soil			
Reversibility of impact	The impact may be reversed if appropriate spill kits are used, but spillages of hazardous substances may be irreversible			
Degree of irreplaceable loss of resource	Low – medium			
Affected stakeholders	Employees on site and surrounding land owners			
Magnitude	<i>Extent</i>	Regional -3		
	<i>Intensity</i>	Medium to High – 4		
	<i>Duration</i>	Medium Term – 3		
	<i>Probability</i>	Possible – 2		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+4+3+2) \times 3 = 36$ Low - medium		L – M
	<i>With mitigation</i>	$WOM \times ME = WM$ $36 \times 0.4 = 14.4$ Low		L

Mitigation measures

- If a spillage occurs these should be cleaned using an appropriate spill kit and the contaminated soils/ materials removed from site and dispose of at an appropriate registered landfill site.
- The use of grey water can drastically reduce the amount of white water required by the project and the following is recommended:
 - Water from hand basins, showers and washing machines should be captured and redirected to flush toilets.
 - If grey water from basins, showers, washing machines or kitchens is to be used for irrigation, all detergents used must be 100% biodegradable to prevent negative impacts on the environment.
 - Rainwater can be captured by fitting tanks to roof gutters and the water can be used for either irrigation or flushing of toilets.
 - Grey water (excluding rainwater) should be used immediately to prevent contamination by algae or bacteria.
- Appropriate stormwater management plan to be implemented in the operational phase.

Significance of the impact

The significance of this impact is regarded as low to medium without mitigation, however, if the use of pesticides and herbicides and grey water are effectively mitigated the significance will be reduced to low.

F-4.1.2 Ground water contamination

Source and nature of the impact

Due to the on-site waste water treatment facility that is proposed to be constructed on site and the temporary storage of waste such as blood and condense, the potential exists for spills during periods of heavy rainfall and in the event of leaks in the storage areas that could contaminate ground water resources.

Table 13: Ground water contamination

Impact source(s)	Spillages or leaks from on-site waste water treatment works or waste storage areas	Status	-
Nature of impact	Contamination of ground water resources		
Reversibility of impact	The impact is reversible by containing and clearing spills as and when they occur by means of an appropriate spill kit		
Degree of irreplaceable loss of resource	Low		
Affected stakeholders	Surrounding land owners		
Magnitude	<i>Extent</i>	Region -3	
	<i>Intensity</i>	Medium – 3	
	<i>Duration</i>	Medium Term – 3	
	<i>Probability</i>	Possible – 2	
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+3+3+2) \times 3 = 33$ Low to Medium	L - M
	<i>With mitigation</i>	$WOM \times ME = WM$ $33 \times 0.4 = 13.2$ Low	L

Mitigation measures

- If a spillage occurs these should be cleaned using an appropriate spill kit and the contaminated soils/ materials removed from site and dispose of at an appropriate registered landfill site.
- Appropriate stormwater management plan to be implemented in the operational phase.

Significance of the impact

The significance of this impact is regarded as low to medium without mitigation, however, if spillages are effectively mitigated the significance will be reduced to low.

F-4.1.3 Increased surface water runoff

Source and nature of the impact

The abundance of hardened surfaces in the operational phase of the abattoir and associated infrastructure, such as the waste water treatment works, as well as the increase of paved surfaces will result in an increase in stormwater runoff and increased velocity of runoff.

Table 14: Increased surface water runoff

Impact source(s)	Construction of infrastructure and development of impermeable surfaces	Status	-
Nature of impact	Increased surface water runoff and increased velocity of runoff		
Reversibility of impact	The impact is not reversible but can be reduced with the implementation of appropriate mitigation measure		
Degree of irreplaceable loss of resource	Low		
Affected stakeholders	Surrounding land owners		

Magnitude	<i>Extent</i>	Region – 3	
	<i>Intensity</i>	Medium - 3	
	<i>Duration</i>	Short – Medium Term – 2	
	<i>Probability</i>	Likely – 3	
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+3+2+3) \times 3 = 33$ Low-Medium	L-M
	<i>With mitigation</i>	$WOM \times ME = WM$ $33 \times 0.6 = 19.8$ Low - medium	L – M

Mitigation measures

- Total sealing of paved areas such as parking lots, driveways, pavements and walkways should not be permitted. Permeable material should rather be utilized for these purposes to minimise runoff.
- Implementation of an ecologically-sensitive stormwater management plan should be considered.

Significance of the impact

While the significance of this impact is regarded as low to medium with or without mitigation, the implementation of mitigation measures outlined in this report and in the operational EMPr should reduce the impact.

F-4.1.4 Impact on existing road infrastructure

Source and nature of the impact

The operational phase of the Zeerust Chicken Abattoir will require involvement and stakeholder buy-in from several government departments. One of the primary areas of concern is the road infrastructure surrounding the proposed site of the Zeerust Chicken Abattoir, as the increase in the number of heavy vehicles construction and delivery of goods will have a significant negative impact on the already deteriorating roads.

Table 15: Impact on road infrastructure

Impact source(s)	Movement of heavy vehicles for construction and delivery of goods	Status	-
Nature of impact	Heavy vehicle loads on local roads		
Reversibility of impact	If investment is made into road infrastructure, the impact can be partially reversed		
Degree of irreplaceable loss of resource	Medium		
Affected stakeholders	Local residents, regional residents		
Magnitude	<i>Extent</i>	Regional – 3	
	<i>Intensity</i>	Medium to high – 3	
	<i>Duration</i>	Medium to long term – 4	
	<i>Probability</i>	Highly Likely – 4	
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+4+4+4) \times 4 = 60$ Medium to High	M – H
	<i>With mitigation</i>	$WOM \times ME = WM$ $60 \times 0.8 = 48$ Medium	M

Mitigation measures

- Engagement with the local municipality is essential to seek out collaborative projects for the improvement of local road infrastructure;
- The major intersections and feeder roads along the route to the abattoir needs to be assessed and areas need to be identified for upgrades; and
- All recommendations outlined in the EMPr should be strictly adhered to.

Significance of the impact

The significance of this impact is considered medium to high as it is inevitable that the roads surrounding the abattoir will be negatively impacted by the development. However, if the necessary improvements to the road are made, this impact may be somewhat reduced. It should however also be noted that the surrounding roads prior to the start of construction is already in disrepair and should be earmarked for improvement by the municipality.

F-4.2 Socio-economic Environment**F-4.2.1 Increase in ambient noise levels****Source and nature of the impact**

Commercial operations and movement of delivery vehicles and trucks will increase the ambient noise levels within the area during the operational phase. This may impact on adjacent landowners as well as sensitive faunal species within the study area.

Table 16: Increase in ambient noise levels

Impact source(s)	Commercial operations and movement of delivery vehicles and trucks		Status	-
Nature of impact	Increased level of ambient noise			
Reversibility of impact	The impact is irreversible but can be mitigated to a large extent			
Degree of irreplaceable loss of resource	Low			
Affected stakeholders	Surrounding land owners			
Magnitude	<i>Extent</i>	Regional – 3		
	<i>Intensity</i>	Low – 1		
	<i>Duration</i>	Permanent – 5		
	<i>Probability</i>	Highly likely – 4		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+1+5+4) \times 3 = 39$ Low to Medium		L - M
	<i>With mitigation</i>	$WOM \times ME = WM$ $39 \times 0.6 = 23.4$ Low		L

Mitigation measures

- All vehicles to be making deliveries or picking up material should adhere to speed limits on domestic roads.
- All on-site equipment must be kept in good working order.
- Pick-ups and deliveries should be restricted to working hours (8:00 to 17:00).
- It is recommended that a row of trees are planted on the boundaries of the site to assist with the lowering of noise impacts derived from the abattoir

Significance of the impact

Due to the limited number of noise receptors (adjacent landowners) the impact associated with increased ambient noise levels during the operational phase is predicted to be of a low to medium significance, however the implementation of noise mitigation measures will reduce the significance of the impact to low.

F-4.2.2 Health Considerations

Source and nature of the impact

The on-site waste facility poses a risk on the health and safety of individuals working in the abattoir

Table 17: Health and safety of individuals

Impact source(s)	The nature of the activities during the operational phase and the risk posed by the on-site WWTW		Status	-
Nature of impact	Health risk to individuals on site			
Reversibility of impact	The impact can be mitigated if facilities are appropriately maintained			
Degree of irreplaceable loss of resource	N/A			
Affected stakeholders	Employees of the abattoir			
Magnitude	<i>Extent</i>	Site -2		
	<i>Intensity</i>	Low-medium – 2		
	<i>Duration</i>	Long term – 4		
	<i>Probability</i>	Possible – 2		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(2+2+4+2) \times 2 = 20$ Low		L
	<i>With mitigation</i>	$WOM \times ME = WM$ $20 \times 0.6 = 12$ Low		L

Mitigation measures

- During the operational phase of the project, the on-site facilities should be maintained on a regular basis to ensure that spillages and leaks at the WWTW do not occur.
- All measures outlined in the EMPr should be strictly adhered to as the EMPr is a legally binding document.
- The facility should also adhere to the guidelines of the Occupational Health and Safety Act, 1993 as well as to the Environmental Regulations for Workplaces, 1987; Facilities Regulations, 1990; and the General Administrative Regulations, 2003.

Significance of the impact

The significance of this impact before and after mitigation is considered to be low, as the maintenance of the facilities should adhere to best practice principles.

F-4.2.3 Impacts of odour from the abattoir facilities

Source and nature of the impact

The operational phase of the project may result in a foul odour that may permeate from the facility.

Table 18: Impact of odour on surrounding community

Impact source(s)	Operational phase of abattoir		Status	-
Nature of impact	Foul odour that may be present from the operations of the abattoir			
Reversibility of impact	The impact is permanent			
Degree of irreplaceable loss of resource	N/A			
Affected stakeholders	The surrounding community			
Magnitude	<i>Extent</i>	Regional – 3		
	<i>Intensity</i>	Medium - 5		
	<i>Duration</i>	Long term - 5		
	<i>Probability</i>	Possible – 2		

Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+5+5+2) \times 3 = 45$ Medium	M
	<i>With mitigation</i>	$WOM \times ME = WM$ $45 \times 0.6 = 27$ Low - medium	L – M

Mitigation measures

- It is imperative that waste material is stored in an appropriate storage area that is clearly demarcated.
- The conditions with regards to such a storage facility will be outlined in the operational EMPr and should be strictly adhered to.
- A registered waste disposal company should be contracted to be remove the waste material that is temporarily stored on site.
- Waste material should not be allowed to remain on site for prolonged periods of time and under no circumstances should waste be landfilled on site.
- All measures outlined in the EMPr should be strictly adhered to as the EMPr is a legally binding document.
- The facility should also adhere to the guidelines of the Occupational Health and Safety Act, 1993 as well as to the Environmental Regulations for Workplaces, 1987; Facilities Regulations, 1990; and the General Administrative Regulations, 2003.

Significance of the impact

The issue of the odour that may emanate from the facility is anticipated to be an issue of prime importance and every attempt should be made to adhere to best practice principles and the conditions outlined in the operational EMPr. As waste is not presently proposed to be landfilled on site, this impact is considered to be of a medium significance and can be mitigated to a low to medium significance.

F-5 IMPACT ASSESSMENT: POSITIVE IMPACTS

F-5.1.1 Conversion and Diversification of land use

Source and nature of the impact

The clearance of land for the construction of the Zeerust Chicken Abattoir ensures that vacant land is utilised and developed to enhance local economic activity. With the conversion of the land into a viable and economically contributing enterprise, it has the potential to be regarded as a medium positive impact.

Table 19: Conversion and diversification of land use

Impact source(s)	Vacant site replaced with an economically viable enterprise		Status	+
Nature of impact	Conversion and diversification of land use			
Reversibility of impact	N/A			
Degree of irreplaceable loss of resource	N/A			
Affected stakeholders	Local businesses and local municipality			
Magnitude	<i>Extent</i>	Site – 2		
	<i>Intensity</i>	Medium – 3		
	<i>Duration</i>	Long term – 4		
	<i>Probability</i>	Definite – 5		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(2+3+4+5) \times 3 = 42$ Medium	M	

	<i>With mitigation</i>	Positive Impact	N/A
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F-5.1.2 Waged Labour / Employment creation and decrease in unemployment

Source and nature of the impact

The Zeerust Chicken Abattoir is anticipated to create 46 new employment opportunities for the surrounding community, as well as other temporary opportunities in the construction phase.

Table 20: Employment creation

Impact source(s)	Availability of job opportunities for local residents		Status	+
Nature of impact	Waged labour			
Reversibility of impact	N/A			
Degree of irreplaceable loss of resource	N/A			
Affected stakeholders	Labour (existing and potential)			
Magnitude	<i>Extent</i>	Regional -3		
	<i>Intensity</i>	Medium – 3		
	<i>Duration</i>	Medium term – 3		
	<i>Probability</i>	Definite – 5		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+3+3+5) \times 3 = 42$ Medium		M
	<i>With mitigation</i>	Positive impact		N/A

Recommendations

- Unskilled and unemployed labour should be sourced from the surrounding local communities as far as possible;
- Skills development opportunities should be granted to community members and local job seekers, where needed;
- Project contracts between the applicant and the specialist contractor should stipulate the use of local labour for unskilled and semi-skilled positions and tasks;
- Ensure that local businesses, especially those of Historically Disadvantaged Individuals (HDI), women and of SMMEs get allocated the maximum appropriate share of project related business opportunities; and
- Ensure that the Labour Relations Amendment Act, 2002 (Act No. 12 of 2002) as well as the necessary policies and procedures are taken into consideration to ensure the correct procurement procedures.

Significance of the impact

This is a positive impact on the surrounding community. The outlined mitigation measures aim to provide further guidance for the increase of waged labour and employment opportunities. With the implementation of the measures outlined in the Social Impact Assessment, labour can be sourced to ensure maximum benefit to the surrounding community.

F-5.1.3 Capacity Building and Skills Transfer

Source and nature of the impact

It is anticipated that the positive associated impacts of the development of the Zeerust Chicken Abattoir will add to the skills base amongst the local community

Table 21: Capacity Building and skills transfer

Impact source(s)	Construction and Operational Phase of the development		Status	+
Nature of impact	Skills transfer to local employees and capacitating of communities			
Reversibility of impact	N/A			
Degree of irreplaceable loss of resource	N/A			
Affected stakeholders	Local residents and businesses			
Magnitude	<i>Extent</i>	Local -2		
	<i>Intensity</i>	Low to medium – 2		
	<i>Duration</i>	Medium to long term – 4		
	<i>Probability</i>	Highly likely – 4		
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(2+2+4+4) \times 2 = 24$ Low to Medium		L - M
	<i>With mitigation</i>	Positive impact		N/A

Recommendations

- Recruit and train local residents to supply unskilled labour during the abattoir construction;
- Stakeholders should be mutually accountable for increased opportunities regarding skills and competency development (general education and technical training);
- Training should be concentrated on skills that can be readily transferred to other employment opportunities in the local area to avoid persons with trained skills leaving the area for work elsewhere;
- Ensure that the employment and training of HDSA and women are implemented.

Significance of the impact

This is a positive impact on the surrounding community. With the implementation of the measures outlined in the Social Impact Assessment, labour can be sourced to ensure maximum benefit to the surrounding community.

F-6 CUMULATIVE IMPACTS

Cumulative impacts are those impacts that are created as a result of the combination of the impacts of the proposed project, with impacts of other projects or operations, to cause related impacts. These impacts occur when the incremental impact of the project, combined with the effects of other past, present and reasonably foreseeable future projects, are cumulatively considerable. The assessment of cumulative impacts on a site-specific basis is however complex – especially if many of the impacts occur on a much wider scale than the site being assessed and evaluated.

F-6.1.1 Increased visual impact from additional industry

Source and nature of the impact

The area is already zoned as an industrial area. However, there are residential communities and schools in close proximity of the site. Additional visual receptors will also include commuters in the area.

Table 22: Increased visual impact from additional industry

Impact source(s)	The buildings that will house the abattoir and associated infrastructure	Status	-
Nature of impact	Cumulative impact of industry in the vicinity of the residential community		
Reversibility of impact	The impact is irreversible		
Degree of irreplaceable loss of resource	N/A		
Affected stakeholders	Surrounding land owners and road users		
Magnitude	<i>Extent</i>	Regional -3	
	<i>Intensity</i>	Medium – 3	
	<i>Duration</i>	Permanent - 5	
	<i>Probability</i>	Highly likely - 4	
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+3+5+4) \times 3 = 45$ Medium	M
	<i>With mitigation</i>	$WOM \times ME = WM$ $45 \times 0.8 = 36$ Low to medium	L - M

Mitigation measures

The location chosen for the abattoir is within the zoned industrial area, however due to present town planning, it is unfortunate that the area is in such close proximity to residential areas.

- Indigenous vegetation can be planted to reduce the visual impact of the development. This has to also be done within reason as to not cause further risks for surrounding businesses.
- It is recommended that a row of trees are planted on the boundaries of the site to assist with the lowering of noise impacts derived from the abattoir

Significance of the impact

The significance of this impact is medium without mitigation, but with due consideration given to the design of the abattoir and adherence to conditions in the operational EMP, the significance may be reduced to low to medium.

F-6.1.2 Impact of the odour in context of other industry

Source and nature of the impact

It is understood that another abattoir facility exists in the vicinity and an accumulative impact of odour may become prevalent once the Zeerust chicken abattoir becomes operational.

Table 23: Increased odour from several industries

Impact source(s)	Cumulative industrial operations	Status	-
Nature of impact	Increased possibility of foul odour		
Reversibility of impact	The impact is partially reversible through appropriate mitigation		
Degree of irreplaceable loss of resource	N/A		
Affected stakeholders	Surrounding community		
Magnitude	<i>Extent</i>	Regional -3	
	<i>Intensity</i>	Medium – 3	
	<i>Duration</i>	Long term – 4	
	<i>Probability</i>	Likely - 4	
Significance	<i>Without mitigation</i>	$(Extent + Intensity + Duration + Probability) \times WF$ $(3+3+4+4) \times 4 = 56$ Medium	M

	<i>With mitigation</i>	$WOM \times ME = WM$ $56 \times 0.6 = 33.6$ Low to Medium	L - M
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Mitigation measures

- Waste material should be stored in an appropriate storage area that is clearly demarcated.
- The conditions with regards to such a storage facility will be outlined in the operational EMP and should be strictly adhered to.
- A registered waste disposal company should be contracted to be remove the waste material that is temporarily stored on site.
- Waste material should not be allowed to remain on site for prolonged periods of time and under no circumstances should waste be landfilled on site.
- All facilities should be maintained regularly to ensure that no leaks or spills occur.
- As the abattoir is considered to be permanent development, alternative technologies should be considered in the future as technology improves.

Significance of the impact

The significance of this impact is considered to be medium without mitigation and low to medium with mitigation.

F-7 IMPACT ASSESSMENT: DECOMMISSIONING PHASE

Decommissioning of the facility is not presently envisioned and therefore no measures are currently outlined in this report for the possible closure or decommissioning.

SECTION G: CONCLUSIONS AND RECOMMENDATIONS

In accordance with the EIA Regulations (GN No. 543), this section provides a summary of the key findings of the EIA and a comparative assessment of the positive and negative implications of the proposed activity and identified alternatives. This section also provides a reasoned opinion as to whether the activity should or should not be authorised and conditions that should be made in respect of that authorisation, as necessary.

G-1 SUMMARY OF THE KEY FINDINGS OF THE EIA

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

A general concern associated with the development of abattoir facilities is the odour that emanates from the facility. This is, however, attributed generally to the landfilling of waste material on the site on which the abattoir is constructed. This will not be the case with this development. The proposed on-site waste water treatment works will treat waste water generated from the abattoir processes and all other waste material such as blood and condense generated from the slaughter processes will be disposed of at a waste facility that is registered to dispose of medical and associated waste. This will have a significant impact on reducing the possibility of the emanation of foul odours from the facility.

As the development is also due to take place in the zoned industrial area, the infrastructure for the provision of bulk infrastructure is already in place and an industrial is the most logical location for the development of the facility.

The opportunity for this project was identified in response to the availability of emerging broiler producers in the area and the lack of abattoir facilities. The project will have significant positive economic impacts for the local economy. This will be through the creation of temporary job opportunities for the construction industry and the permanent jobs that will be created. These jobs will be earmarked for members of the local community and specifically women and unemployed youth will be hired.

Table 24: Summary of the significance of identified impacts without and with mitigation measures

Impact	Significance	
	Without Mitigation	With Mitigation
Construction Phase		
Biophysical Environment		
Impact on the soil profile	Low	Low
Ground water contamination	Low to Medium	Low
Increased surface water runoff	Low to Medium	Low to Medium
Destruction of natural vegetation including species of conservation concern and disturbance of faunal species	Medium	Medium
Spread of alien invasive plant species	Medium	Low
Socio Economic Environment		
Increase in ambient dust levels	Medium	Low to Medium
Increase in ambient noise levels	Low to Medium	Low
Operational Phase		
Biophysical Environment		
Soil contamination	Low to Medium	Low
Ground water contamination	Low to Medium	Low
Increased surface water runoff	Low to Medium	Low to Medium

Increase on existing road infrastructure	Medium to High	Medium
Socio Economic Environment		
Increase in ambient noise levels	Low to Medium	Low
Health and safety of individuals	Low	Low
Impact of odour on surrounding community	Medium	Low to Medium
Permanent job creation	High Positive	
Positive Impacts		
Conversion and diversification of land use	Medium	N/A
Waged Labour / Employment creation	Medium	N/A
Capacity building and skills transfer	Low to medium	N/A
Cumulative Impacts		
Increased visual impact from additional industry	Medium	Low to Medium
Increased odour from several industries	Medium	Low to Medium

G-2 EAP'S RECOMMENDATION

Having assessed all the potential environmental impacts associated with the proposed development it is the opinion of the EAP that the Zeerust Chicken Abattoir is issued with a positive Environmental Authorisation from DEA for the following reasons:

- The location of the site chosen is within the Zeerust Industrial area and has all available bulk services infrastructure in place for the efficient integration of the abattoir into the industrial area (to be facilitated by the applicant, RMLM);
- The impacts identified in the EIR phase can be adequately mitigated to minimise the effects on the surrounding community and the environment, provided that the conditions of the operational EMPr are adhered to, audited on a regular basis and regular reports are submitted to the DEA as per conditions that will be stipulated in the environmental authorisation;
- The use of newer technologies and the commitment to the effective disposal of waste will, most importantly, ensure that minimal impact is made on the surrounding environment in terms of air quality and odour-causing contaminants;
- The positive contribution to the local economy in terms of revenue and job creation is viewed to be of significant importance;
- It is essential that an ecologically-sensitive stormwater management plan be compiled prior to the start of construction. This may be made a condition of the environmental authorisation;
- An alien eradication and monitoring plan should be compiled prior to the start of construction to ensure that alien invasive plants are properly managed and to ensure the integrity of the indigenous vegetation that dominates the site;
- The facility must comply with the guidelines provided in the Occupation Health and Safety Act, 1993 as well as to the associated general and health-specific regulations and local municipality by-laws with regard to noise;
- It is the recommendation of the EAP that the confirmation of bulk services by the municipality be made a condition of the environmental authorisation and the letters of confirmation of services be made available to the DEA prior to construction;
- Title deeds for the allocated land parcel are also to be submitted to the DEA prior to construction;
- As final layout plans for the placement of infrastructure on site have not yet been finalised, it is a further recommendation of the EAP that the Environmental Authorisation include a condition to allow for the final layout plans to be submitted to the DEA prior to the start of construction; and
- Although a number of potential negative impacts were identified, with appropriate and recommended mitigation, there are no fatal flaws that should prevent the development from proceeding.

SECTION H: REFERENCES

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SECTION I: APPENDICES

Appendix 1: Locality Map

Appendix 2: Photograph plate

Appendix 3: Layout

Appendix 4: Authority Correspondence

Appendix 5: Public Participation

Appendix 6: Specialist Studies

Appendix 7: Confirmation from service providers (N/A)

Appendix 8: Environmental Management Programme

Appendix 9: Copy of Title Deeds