



Langspruit Landgoed (Pty) Ltd.

Final Basic Assessment Report

Locality: Standerton

Departmental Ref No: 17/2/3 GS-125

25 March 2013

SHANGONI
Management Services (Pty) Ltd



FINAL BASIC ASSESSMENT REPORT

**Langspruit Landgoed
(Pty) Ltd.**

Final Basic Assessment Report

Locality: Standerton

Departmental Ref No:17/2/3 GS-125

Unit C8
Block @ Nature
472 Botterklapper Street
Pretoria

Office: (012) 807 7036
Fax: (012) 807 1014



PROJECT DETAILS

**Mpumalanga Department of Economic Development,
Environment and Tourism (MPDEDET)**

Reference No.: 17/2/3 GS-125

Project Title: Expansion of the Langspruit Boerdery Broiler Facilities

Project Number: LAN-LAN-12-05-17

Compiled by: Ms. Patricia van der Walt

Date: 25 March 2013

Location: Portion 48 of the farm Diepspruit 414 IS, Mpumalanga

Technical Reviewer: Mr. Corrie Potgieter



Signature



TABLE OF CONTENTS

LIST OF FIGURES	6
LIST OF TABLES	7
LIST OF ADDENDUM AND APPENDICES	10
REFERENCES	11
DEFINITIONS	13
ABBREVIATIONS	16
EXECUTIVE SUMMARY	17
Document layout:	17
1. INTRODUCTION	19
1.1 Applicant	19
1.2 Appointed Environmental Assessment Practitioner	20
1.3 Current operation	21
1.3.1 Current design	21
1.3.2 Current operational activities	22
1.4 Proposed Activity.....	23
1.4.1 Proposed design	23
1.4.2 Proposed operational activities	24
1.5 Potential Environmental Licensing Required	25
1.5.1 Water	25
1.5.2 Waste	26
1.5.3 Atmospheric emissions	27
1.6 Proposed Locality.....	27
2. NATURE AND EXTENT OF THE ENVIRONMENT AFFECTED BY THE ACTIVITY	38
2.1 Biophysical aspects affected	38
2.1.1 Geology	38
2.1.2 Regional climate.....	40
2.1.3 Topography	46
2.1.4 Soils	48
2.1.5 Land use and land capability.....	54
2.1.6 Fauna and Flora	56
2.1.7 Surface water	61
2.1.7 Groundwater.....	61
2.1.8 Water Authority.....	65
2.1.9 Noise	65
2.1.10 Sites of archaeological and cultural interest.....	66
2.1.11 Visual aspects	66
2.1.12 Air Quality	66
2.2 Socio-economic aspects	68



2.2.1 Demography	68
2.2.2 Major economic activities	69
2.2.3 Unemployment and employment	71
3. LEGISLATION AND GUIDELINES APPLICABLE	73
3.1 Laws of general application	73
3.2 Atmospheric emissions	73
3.3 Water Management	73
3.4 Waste management	73
3.5 Planning of new activities	73
3.6 Land and Soil Management	73
3.7 Heritage resources	73
4. PUBLIC PARTICIPATION PROCESS	74
4.1 Introduction	74
4.2 Objectives of the PPP	74
4.3 The Guidelines Followed for the PPP	75
4.4 Public Participation Process	75
4.5 Public Participation Process Followed	79
4.5.1 Identification & Registration of I&APs on a Database	80
4.5.2 Notification of key stakeholders and IAPs	80
4.5.3 Comments and Response Report	88
4.5.4 Registering Stakeholders	90
4.5.5 Press Notices	90
4.5.6 Placement of Public Notices	94
4.5.7 Issuing I&APs and Stakeholders with a Draft BAR	95
4.5.8 Conclusions of the Public Participation Exercise	95
5. NEED AND DESIRABILITY FOR THE ACTIVITY	96
5.1 Developer	96
5.2 Local Community	96
5.3 District and Provincial Benefit	96
6. IDENTIFIED ALTERNATIVES	98
6.1 No-Go Option	98
6.1 Construction Alternatives:	99
6.1.1 Site selection	99
6.1.2 Alternative Design	100
6.1.3 Scheduling Alternatives	100
6.2 Operational Alternatives:	100
6.2.1 Activity Alternatives	100
6.2.2 Process Alternatives	101
6.2.3 Input Alternatives	101
7. ENVIRONMENTAL IMPACT ASSESSMENT	102



7.1 Construction Phase	104
7.2 Operational Phase.....	115
7.3 Environmental Impact Statement and Recommendation.....	129

LIST OF FIGURES

<i>Figure 1: Proposed site alternatives.....</i>	24
<i>Figure 2: Site locality map.....</i>	28
<i>Figure 3: Photograph of the current broiler houses.....</i>	29
<i>Figure 4: Photograph of an existing poultry house and its feeding silos.....</i>	29
<i>Figure 5: Photograph of a water reservoir, store room and JoJo tanks in the distance (at the existing broiler facility).....</i>	30
<i>Figure 6: Photograph of the coal storage area and JoJo tanks at the existing broiler facility.....</i>	30
<i>Figure 7: Photograph of a coal fired heater at the existing facility (1).....</i>	31
<i>Figure 8: Photograph of a coal fired heater at the existing facility (2).....</i>	31
<i>Figure 9: Photograph of the existing broiler houses in opposite direction to Figure 2.....</i>	32
<i>Figure 10: Photograph of an existing broiler house and wash water trench.....</i>	32
<i>Figure 11: Site alternative 1 (1).....</i>	33
<i>Figure 12: Site alternative 1 (2).....</i>	33
<i>Figure 13: Site alternative 1 (3).....</i>	34
<i>Figure 14: Site alternative 1 (4).....</i>	34
<i>Figure 15: Site alternative 1 (5).....</i>	35
<i>Figure 16: Site alternative 2 (1).....</i>	35
<i>Figure 17: Site alternative 2 (2).....</i>	36
<i>Figure 18: Site alternative 2 (3).....</i>	36
<i>Figure 19: Site alternative 2 (4).....</i>	37
<i>Figure 20: Site alternative 2 (5).....</i>	37
<i>Figure 21: Langspruit Landgoed geology.....</i>	39
<i>Figure 22: Standerton Average Monthly Rainfall.....</i>	40
<i>Figure 23: Standerton Average Annual Rainfall.....</i>	41
<i>Figure 24: Mean annual precipitation in Mpumalanga.....</i>	42
<i>Figure 25: Standerton Average Daily Temperatures.....</i>	43
<i>Figure 26: Wind Rose – January.....</i>	44
<i>Figure 27: Wind Rose – February.....</i>	44
<i>Figure 28: Wind Rose – March.....</i>	44
<i>Figure 29: Wind Rose – April.....</i>	44
<i>Figure 30: Wind Rose – May.....</i>	44
<i>Figure 31: Wind Rose – June.....</i>	44
<i>Figure 32: Wind Rose – July.....</i>	45



<i>Figure 33: Wind Rose – August.</i>	45
<i>Figure 34: Wind Rose – September.</i>	45
<i>Figure 35: Wind Rose – October.</i>	45
<i>Figure 36: Wind Rose – November.</i>	45
<i>Figure 37: Wind Rose – December.</i>	45
<i>Figure 38: Topography Map of Site.</i>	47
<i>Figure 39: Soil map.</i>	49
<i>Figure 40: General soil description for Mpumalanga.</i>	50
<i>Figure 41: Soil leaching status classes for Mpumalanga.</i>	51
<i>Figure 42: Soil depth in Mpumalanga.</i>	52
<i>Figure 43: Clay classes of the topsoil in Mpumalanga.</i>	53
<i>Figure 44: Current infrastructure.</i>	54
<i>Figure 45: Lekwa Local Municipality' special development concept.</i>	55
<i>Figure 46: Vegetation map.</i>	58
<i>Figure 47: Mpumalanga Terrestrial Biodiversity Assessment.</i>	59
<i>Figure 48: Mpumalanga Aquatic Biodiversity Assessment.</i>	60
<i>Figure 49: The Vaal River catchment (C11L quaternary catchment).</i>	62
<i>Figure 50: Primary catchments in Mpumalanga.</i>	63
<i>Figure 51: Upper Vaal Water Management Area (Basson, & Rossouw, 2003).</i>	64
<i>Figure 52: Noise decline curve.</i>	66
<i>Figure 53: Example of a notification letter to stakeholders.</i>	85
<i>Figure 54: Proof of registered letters sent (pg 1).</i>	86
<i>Figure 55: Proof of registered letters sent (pg 2).</i>	87
<i>Figure 56: Wording of site notice (English).</i>	91
<i>Figure 57: Wording of site notice (Afrikaans).</i>	92
<i>Figure 58: Proof of newspaper advertisement.</i>	93
<i>Figure 59: Photograph of site notice (1).</i>	94
<i>Figure 60: Photograph of site notice (2).</i>	94
<i>Figure 61: Photograph of site notice (3).</i>	95
<i>Figure 62: Proposed site alternatives.</i>	100

LIST OF TABLES

<i>Table 1: Current versus proposed activities.</i>	24
<i>Table 2: Direction and distance to the nearest town.</i>	27
<i>Table 3: Dominant vegetation within the Soweto Highveld Grassland.</i>	57
<i>Table 4: Lekwa Local Municipality population statistics.</i>	68
<i>Table 5: Distribution of Population by Gender in Lekwa Local Municipality (Lekwa Local Municipality – IDP, 2007/2011)</i>	69



<i>Table 6: Population Distribution per Ward 13 in Lekwa Local Municipality</i>	69
<i>Table 7: Gert Sibande State of HDI, Gini Coefficient and Poverty Rates. (Pixley Ka Seme Local Municipality – dIDP, June 2009)</i>	70
<i>Table 8: Population Distribution per Ward in Lekwa Local Municipality</i>	70
<i>Table 9: Population Distribution per Ward in Lekwa Local Municipality</i>	71
<i>Table 10: Industrial Economic Sectors and employment within Lekwa Municipality (Lekwa Local Municipality – IDP, 2007/2011).</i>	72
<i>Table 11: Stakeholders identified during the PPP</i>	81
<i>Table 12: Registered I&APs</i>	84
<i>Table 13: Comments and response report</i>	88
<i>Table 14: Development vs. No-Go Option</i>	99
<i>Table 15: Environmental impact assessment parameters</i>	102
<i>Table 16: Environmental Risk Matrix</i>	103
<i>Table 17: Environmental risk assessment: Environmental Awareness and Training</i>	104
<i>Table 18: Environmental risk assessment: Site clearance</i>	104
<i>Table 19: Environmental risk assessment: Stockpiling</i>	105
<i>Table 20: Environmental risk assessment: Fire risk</i>	106
<i>Table 21: Environmental risk assessment: Cement and concrete</i>	108
<i>Table 22: Environmental risk assessment: Generation of wash water</i>	108
<i>Table 23: Environmental risk assessment: Vehicle and equipment maintenance</i>	109
<i>Table 24: Environmental risk assessment: General/domestic and hazardous waste</i>	110
<i>Table 25: Environmental risk assessment: Dust</i>	111
<i>Table 26: Environmental risk assessment: Utilisation of groundwater</i>	111
<i>Table 27: Environmental risk assessment: Ablution facilities</i>	112
<i>Table 28: Environmental risk assessment: Hazardous chemical substances.</i>	113
<i>Table 29: Environmental risk assessment: Noise</i>	114
<i>Table 30: Environmental risk assessment: Environmental Awareness and Training</i>	115
<i>Table 31: Environmental risk assessment: Dust</i>	115
<i>Table 32: Environmental risk assessment: Heatco ovens and coal storage areas</i>	116
<i>Table 33: Environmental risk assessment: Noise</i>	117
<i>Table 34: Environmental risk assessment: Handling and storage of Coal.</i>	117
<i>Table 35: Environmental risk assessment: General/domestic and hazardous waste</i>	118
<i>Table 36: Environmental risk assessment: Handling, storage and disposal of ash</i>	119
<i>Table 37: Environmental risk assessment: Chicken mortalities</i>	120
<i>Table 38: Environmental risk assessment: Litter (manure and bedding)</i>	121
<i>Table 39: Environmental risk assessment: Washing of broiler facilities.</i>	122
<i>Table 40: Environmental risk assessment: Storm water control.</i>	122
<i>Table 41: Environmental risk assessment: Chemical substances.</i>	123
<i>Table 42: Environmental risk assessment: Equipment and vehicle maintenance.</i>	124
<i>Table 43: Environmental risk assessment: Sanitation</i>	125



Table 44: Environmental risk assessment: Outbreak of disease or infection of chickens 126
Table 45: Environmental risk assessment: Resource use during operation..... 127



LIST OF ADDENDUM AND APPENDICES

- ADDENDUM A - MPDEDET Basic Impact Assessment Report (standard format)
- APPENDIX A - Site Plan(s)
- APPENDIX B - Photographs
- APPENDIX C - Facility Illustrations
- APPENDIX D - Specialist Reports
- APPENDIX E - Public Participation Documents
- APPENDIX F - Other Information – CVs of Environmental Practitioners



REFERENCES

Acocks, J.P.H., 1988. Veld types of South Africa. 3rd ed. *Memoirs of the botanical Survey of South Africa*, 57, pp. 1–146.

Mucina, L., & Rutherford, M. C., 2006. *The vegetation of South Africa, Lesotho and Swaziland*. Pretoria: South African National Biodiversity Institute.

Bredenkamp, G.J & L.R. Brown., 2003. A reappraisal of Acocks' Bankenveld: origin and diversity of vegetation types. *South African Journal of Botany*, 69(1), pp. 7–26.

Basson, M.S., Rossouw, J.D., September 2003, *Upper Vaal Water Management Area – Overview of Water Resource Availability and Utilisation*. DWAF, Report No: P WMA 08/000/00/0203), pp. 8.

Environmental Protection agency, Chapter 13: Miscellaneous Sources - 13.1 Wildfires and Prescribed Burning, 5th Edition, Volume I, AP 42, United States.

Environmental Protection agency, Chapter 13: Miscellaneous Sources- 13.2.2 Unpaved Roads, 5th Edition, Volume I, AP 42, United States.

Environmental Protection agency, Chapter 13: Miscellaneous Sources - 13.2.3 Heavy Construction Operations, 5th Edition, Volume I, AP 42, United States.

Environmental Protection agency, Chapter 13: Miscellaneous Sources- 13.2.4 Aggregate Handling and Storage Piles, 5th Edition, Volume I, AP 42, United States.

Gert Sibande District Municipality – Spatial Development Framework (April 2009).

Gert Sibande District Municipality – Draft Integrated Development Plan (2012/13 to 2016/17).

Lekwa Local Municipality - Integrated Development Plan (2007/2011).

Kwesi V3 Engineers, Gert Sibande District, 2009, Water Services Development Plan (WSDP) for Lekwa Local Municipality (2009/2013), (Project No. 2403020PZO).

DEA&DP, 2010. Guideline on Need and Desirability, EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning (DEA&DP).



<http://www.agis.agric.za/agisweb/agis.html>

<http://www.weathersa.com>



DEFINITIONS

‘Best Practicable Environmental Option’

Is the option that provides the most benefit and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term. In determining the best practicable environmental option, adequate consideration must also be given to opportunity costs.

Environment

The surroundings (biophysical, social and economic) 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 Aspects

Elements of an organization’s activities, products or services that can interact with the environment.

Environmental Degradation

Refers to pollution, disturbance, resource depletion, loss of biodiversity, and other kinds of environmental damage; usually refers to damage occurring accidentally or intentionally as a result of human activities.

Environmental Impacts

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization’s activities, products or services.

Environmental Impact Assessment

A study of the environmental consequences of a proposed course of action.



Environmental Impact Report

A report assessing the potential significant impacts as identified during the environmental impact assessment.

Environmental impact

An environmental change caused by any human act.

GINI Coefficient

Is used as a measure of the distribution of income across a group of people. The number can range between 0 and 1 where “0” represents a perfectly equitable distribution and “1” a completely inequitable distribution.

Land use

The various ways in which land may be employed or occupied. Planners compile, classify, study and analyse land use data for many purposes, including the identification of trends, the forecasting of space and infrastructure requirements, the provision of adequate land area for necessary types of land use, and the development or revision of comprehensive plans and land use regulations.

Pollution Prevention

Any activity that reduces or eliminates pollutants prior to recycling, treatment, control or disposal.

Public Participation Process

A process of involving the public in order to identify needs, address concerns, to contribute to more informed decision making relating to a proposed project, programme or development.

Topography

Topography, a term in geography, refers to the "lay of the land" or the physio-geographic characteristics of land in terms of elevation, slope and orientation.

Vegetation

All of the plant life growing in and characterizing a specific area or region; the combination of different plant communities found there.



Waste

Waste is unwanted or undesired material left over after the completion of a process. "Waste" is a human concept: in natural processes there is no waste, only inert end products.



ABBREVIATIONS

BID	- Background Information Document
BAR	- Basic Assessment Report
CRR	- Comments and Responses Report
MPDEDET	- Mpumalanga Department of Economic Development, Environment and Tourism, Mpumalanga
DWA	- Department of Water Affairs
EAP	- Environmental Assessment Practitioner
ECA	- Environmental Conservation Act of 1989
EIA	- Environmental Impact Assessment
EIR	- Environmental Impact Report
EMF	- Environmental Management Framework
EMP	- Environmental Management Programme
GN	- Government Notice
I&AP	- Interested and Affected Party
NEMA	- National Environmental Management Act, Act 107 of 1998, as amended
R	- Regulation



EXECUTIVE SUMMARY

The farming company Langspruit Boerdery, located on the farm Diepspruit, is owned by Langspruit Landgoed (Pty) Ltd. The farm is contracted to supply chickens at a live-weight of approximately 2kg to the Earlybird Farm abattoir facility. Langspruit Boerdery plans to expand their broiler facilities in the near future, to meet current demand for Chicken in South Africa. The proposed expansion entails the construction and operation of eight new poultry broiler houses, each with the capacity to house 26 000 chickens.

In accordance with the regulations published in GN R 543 and R 544 of 18 June 2010, in terms of section 24D of the National Environment Management Act, 1998 (Act No. 107 of 1998), the applicant is required to carry out a Basic Environmental Impact Assessment for the following activity:

Listing notice 1, R. 544 of 18 June 2010, Activity No. 32: ‘The expansion of facilities for the concentration of poultry, excluding chicks younger than 20 days, where the capacity of the facility will be increased by: (ii) more than 5 000 poultry per facility situated outside an urban area.’

The purpose of this document is to supply the Mpumalanga Department of Economic Development, Environment and Tourism (MPDEDET) with the requested information pertaining to the National Environmental Management Act (NEMA), as amended, and Regulation 22 of the Environmental Impact Assessment Regulations, 2010.

Contained in this document is a brief overview of the activity and site specific information for the proposed expansion project (location, topography, surrounds, vegetation, etc.). The latter part of the document contains an environmental management framework that includes a reflection of applicable legislation, the public participation process followed, the need and desirability of the project, identified alternatives, a quantitative risk assessment, and an environmental management plan.

Document layout:

Section one – Introduction

The purpose of this section is to provide a brief overview of the current operation, proposed activity and locality, applicable infrastructure and potential environmental licensing required.

Section two – Nature and extent of the environment affected by the activity

The status of the environment in which the farm is situated is discussed in section 2. The environmental areas, geology, climate, topography, soil, land use and land capability, fauna and



flora, surface water, groundwater, archaeological and cultural sites, visual aspects, air quality and socio-economic aspects are described in this section.

Section three – Legislation and guidelines applicable

Section three lists all environmental legislation and guidelines applicable to the proposed project.

Section four – Public participation process

This section provides information pertaining to the consultation process that will be followed during this basic assessment process.

Section five – Need and desirability for the activity

Section five describes the need and desirability of this project from the perspective of the developer, local community and the district municipal area.

Section six – Identified alternatives

Section six considers alternatives to project site selection for the proposed development; alternatives to layout of the development; and alternatives to construction methodologies and/or materials used for the development.

Section seven – Environmental Impact Assessment

In section seven, all activities related to the proposed expansion of the broiler facility that could have an environmental impact, were identified. The environmental risk each impact poses is then determined based on a combination of parameters associated with the impact, such as extent and duration. The feasibility of the project can then be determined based on the outcomes of the risk assessments coupled with the recommendations made by the EAP.



1. INTRODUCTION

This report forms part of an application for environmental authorisation for the proposed broiler farm expansion on Portion 48 of the farm Diepspruit 414 IS, Mpumalanga. The site is approximately 16.8km east of Standerton. Shangoni Management Services (Pty) Ltd. was appointed, as an independent environmental practitioner, to assist the applicant, Langspruit Landgoed (Pty) Ltd., in complying with the 2010 EIA Regulations in terms of the National Environmental Management Act (Act No. 107 of 1998).

An application to undertake an Environmental Impact Assessment (Basic Assessment) process was submitted to the identified competent authority, the Mpumalanga Department of Economic Development, Environment and Tourism (MPDEDET). The Department subsequently registered the project and the formal Basic Assessment (BAR) process was thereby initiated.

All the findings from the Basic Assessment process are included in this report. Also included in the report is a construction- and operational- Environmental Management Plan (EMP) that addresses appropriate mitigation steps for the different phases of the project.

1.1 Applicant

Name of Applicant	Langspruit Landgoed (Pty) Ltd.	
Contact Person	Mr. Gert du Preez	
Postal Address	Posbus 433 Standerton 2430	
Telephone No.	017 712 3186	
Cell phone No.	082 449 5263	
Fax No.	086 697 7664	
Farm name and portion on which the activities take place	Portion 48 of the farm Diepspruit 414 IS, Mpumalanga	
Co-ordinates of operation	26°56'54.36"S	29°25'1.53"E



1.2 Appointed Environmental Assessment Practitioner

Name of firm	Shangoni Management Services (Pty) Ltd.	
Postal address	PO Box 74726 Lynwood Ridge Pretoria 0040	
Telephone No.	(012) 807 7036	
Fax	(012) 807 1014/086 643 5360	
E-mail	lizette@shangoni.co.za	
Team of Environmental Assessment Practitioners on project		
Name	Qualifications	Responsibility
Mr. H.L. de Villiers	Bsc. (Hons) (PU for CHE) MSc.(UP)	EIA Project Leader and Co-ordinator
Ms. Lizette Crous	Post Graduate Certificate Environmental Management (University of London)	EAP
Ms. Patricia van der Walt	B.Sc. (Hons) (Applied Science in Environmental Technology)	Junior EAP

Detailed CV's for the project team are appended (Appendix F).



1.3 Current operation

The farm Diepspruit is owned by Langspruit Landgoed (Pty) Ltd. Chickens are raised on the farm and the farm's extent is 1 041.6130 ha. The site falls within the Lekwa Local Municipality of the Gert Sibande District Municipality, Mpumalanga Province.

The farm is contracted to supply chickens at a live-weight of approximately 2kg to the Earlybird Farm abattoir facility.

1.3.1 Current design

Langspruit Boerdery currently has eight poultry broiler houses on the farm, each with a surface area of 1 800m² (120m x 15m), and capable of accommodating a maximum of 26 000 chickens.

Langspruit Boerdery uses automated feeding pans and drinking systems (Ziggity and Sunnystar). Suspended drinker lines with special nipple attachments allow for efficient distribution of clean drinking water to the chickens throughout the production cycle. The height of the drinker lines are adjusted as the chickens grow older and taller and the nipple attachments each act as a non-return valve that prevents the unnecessary spillage of water within the houses.

Automated systems aid in conserving resources (water and feed) by preventing unnecessary wastage and contamination of the resources. In this way automated systems have a positive impact on the environment and a corresponding reduction in production cost.

Heatco ovens are used to heat the broiler houses. These ovens use A-grade coal and are regularly serviced. Insulation and other design aspects of these houses ensure that heat is captured and retained for longer periods.

The interaction between broilers and their micro-environment is a significant problem in poultry production. A change in their micro-environment affects the broilers' growth rate, feeding efficiency, body weight and mortality rate. Changes in the facilities' micro-environment can be caused by factors such as seasonal changes, poor lighting and inadequate stocking density. A well defined micro-environment should therefore be maintained for optimum production.

Each broiler house is built to specifications that ensure optimal health and therefore optimal growth of the chickens. The houses have concrete floors and brick walls with tin roofs. The walls and ceilings of each house are cladded internally with insulation material (ISO panels).



The frame of each broiler house consists of a steel beam structure, specially designed and pre-fabricated off-site. During construction, the steel frames are assembled on the prepared concrete floor and then bricked up and roofed.

1.3.2 Current operational activities

The broiler operation comprises of approximately 7 production cycles per year with each cycle lasting approximately 35 days. At the end of each production cycle, a bird collection team from Earlybird Farm manually catch the full-grown chickens. The chickens are immediately put into cages and stacked onto a truck to be transported on the same day to the chicken abattoir.

Litter (Manure and bedding mixture)

Sunflower husks and wood shavings are used as bedding in each broiler house. Litter (mixture of manure and bedding) is kept dry by rotating it daily with shovels. After each cycle, the litter is cleaned out of the house and re-used as feed for the cattle on the farm.

Mortalities

Much care is given to the overall well-being of the chickens throughout each production cycle. Langspruit Boerdery follows a strict disease control- and vaccination programme as specified by Earlybird Farm.

However, a percentage of the chickens will not survive (mortalities) due to the limitations and challenges of each production cycle. The percentage of mortalities is estimated to be around 6%. Mortalities are currently incinerated on-site or fed to pigs raised on a different part of the farm.

Domestic waste and wastewater

Approximately 16 employees currently work on the farm. Domestic waste generated on the premises is removed by the farm owner and burnt in an old silo (26°56'59.99'S, 29°24'56.20'E).

Water Use

Abstraction: The farm is dependent on six onsite boreholes for the provision of clean water for domestic use as well as farming activities. Water in the broiler facility will mainly be used for the rearing of broilers and washing of houses. Fitted boreholes provide clean potable water to the farm. Each chicken uses approximately 6 litres for drinking water per cycle. Currently approximately 8 736m³ water is used per annum for poultry drinking water (calculated by: 8 houses x 26 000 broilers/house/cycle x 7 cycles/annum x 6liters/broiler x 1m³/1 000liters).



Currently a combined volume of 9 296m³ (8 736m³ drinking water + 560m³ wash water) of water is used at the broiler facility.

Storage: The abstracted groundwater is currently stored in twelve JoJo tanks, with a combined storage capacity of 60m³.

Wash water: The broiler operation undertakes approximately 7 production cycles a year. The broiler houses get cleaned and washed after each cycle. After each cycle approximately 80m³ wash water is used to clean all the broiler houses, therefore approximately 560m³ is currently used per annum (calculated by: 80m³/ cycle x 7 cycles/annum). Detergents used for the washing of the houses include Supa wash and Vet Gluta Class (Gluta Elder Hyde).

Waste water generated from washing the broiler houses is channelled and discharged into the surrounding environment.

Domestic waste water: Domestic wastewater (sewage) generated on site, is disposed of into a French drain.

Electricity

Eskom electricity is the main power supplier. A backup diesel generator is available at the facility in the event of a power failure.

1.4 Proposed Activity

1.4.1 Proposed design

The proposed expansion entails the construction and operation of eight new poultry broiler houses. The additional developmental footprint will be approximately 5.3 hectares. The altered footprint will comprise of poultry broiler houses, office and residential buildings, internal road infrastructure, open spaces between the houses and a bio-security buffer zone surrounding all buildings.

The new broiler houses will be built to the same specifications and operated in the same way as the existing houses. Each new broiler house, with dimension of 120m X 15m, will have the capacity to house 26 000 chickens. The expansion will add 208 000 chickens to the current production capacity of the farm.

Two alternative sites have been identified for the new broiler houses (shown in the figure below). The first (preferred site) is to the east of the existing broiler houses and the second is to the south. The client has identified site 1 as the preferred alternative.





Figure 1: Proposed site alternatives.

1.4.2 Proposed operational activities

The broiler operation will continue to undertake approximately 7 production cycles a year, each cycle lasting approximately 35 days. At the end of each production cycle, a bird collection team from Earlybird Farm will manually catch the full-grown chickens. The chickens will immediately be put into cages and stacked onto a truck to be transported on the same day to the chicken abattoir.

Table 1: Current versus proposed activities.

Activity	Current	Proposed
Litter Management	Litter is disposed of by feeding it to the cattle on the farm.	Litter will be disposed of by feeding it to the cattle on the farm.
Mortalities Management	Mortalities are incinerated or fed to pigs.	Licensing and/or alternative disposal method.
Domestic waste Management	Burnt in old silo.	Licensing and/or alternative disposal method.
Waste wash water disposal	Into the surrounding environment.	Licensing and/or alternative disposal method. Recommendation: Disposal of wastewater into an



		evaporation pond.
Sewage disposal	French drain	French drain
Water Use	8 736m ³ /annum groundwater abstracted from boreholes.	17 472m ³ /annum groundwater abstracted from boreholes.
Water Storage	12 x JoJo Tanks (capacity of 60m ³) – Operational and domestic water resource. 30m ³ water reservoir - Emergency water resource.	12 x JoJo Tanks (capacity of 60m ³) – Operational and domestic water resource. 30m ³ water reservoir - Emergency water resource. Additional water storage in JoJo tanks might take place if required at a later stage.
Electricity use	Eskom and backup generator	Eskom and backup generator

1.5 Potential Environmental Licensing Required

1.5.1 Water

Registration

According to the GN 288 General Authorisations, dated April 2012, in terms of Section 39 of the NWA, 1998 (Act No. 36 of 1998), a person who takes more than 10m³ of water from a surface water resource or 10m³ of water from a groundwater resource per day on average over a year on a property or piece of land or stores water, must register the water use with the responsible authority.

After the proposed expansion, Langspruit Boerdery will use approximately 2 496m³ of groundwater per cycle, which means they will use approximately 71.31m³ groundwater per day (calculated by: 2 496m³/cycle x 1cycle/35days). In the event of an emergency, surface water may be abstracted to aid in fighting of a fire or stored, in a 30m³ cement dam, as a reserve in times of water shortage. Groundwater is abstracted and used in the operation. Abstracted groundwater is stored in twelve JoJo tanks, with a combined capacity of 60m³. Additional JoJo tanks would need to be installed after the proposed expansion. The abstraction and storage of water will therefore require registration with the responsible authority.

Licensing

The site area falls within the Vaal River catchment in the upper reaches of the Vaal River (Upper Vaal Water Management Area or WMA). Table 1 (Surface water abstraction and storage volumes) in GN 288 of 4 April 2012, general authorisations in terms of Section 39 of the



National Water Act, 1998 (Act No. 36 of 1998), states that the maximum volume of surface water that may be abstracted from this property is 2000m³ a year at a maximum rate of 1l/s. Table 1 of GN 288 also states that a maximum storage of 2 000m³ of water may occur on this property.

In the event of an emergency, surface water may be abstracted to aid in fighting of a fire or stored, in a 30m³ cement dam, as a reserve in times of water shortage. Currently water used in the operation is stored in twelve JoJo tanks, with a combined capacity of 60m³. Additional JoJo tanks would need to be installed after the proposed expansion. A license in terms of Chapter 4 of the National Water Act, 1998 may therefore be required in terms of the volume and rate at which surface water is abstracted.

The property falls within the C11L quaternary drainage region. Table 2 (groundwater abstraction rates) in GN 288 of 4 April 2012, general authorisations in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998), states that 75m³ water may be abstracted per hectare per year in the C11L quaternary drainage region.

The property is 1041.6130 hectares in size. This means that under General Authorisations 78 120.975m³ may be abstracted on this property per year. The abstraction of approximately 17 472m³ of groundwater per year, to be used at the broiler facility, is less than the amount (78 120.975m³) that is generally authorized. A license in terms of Chapter 4 of the National Water Act, 1998 is therefore not required for the abstraction of groundwater from the boreholes on site.

Domestic wastewater (sewage), generated on site, is disposed of into a French drain. As a result of the wastewater disposal site (French drain) being further than 100m from any of the boreholes, a license in terms of Chapter 4 of the National Water Act, 1998 is not required for the French drains.

1.5.2 Waste

The Animal Health Act, 2002 (Act No. 7 of 2002) regulates disposal of animal carcasses, such as chicken mortalities are excluded from the National Environmental Management: Waste Act (Act No. 59 of 2008).

Disposal of domestic waste generated on a premise in areas not serviced by the municipal service may not exceed 500kg per month. Should the waste disposed of on the premise exceed 500kg per month, a license in terms of Section 19(1) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), would be required.



1.5.3 Atmospheric emissions

The incineration of mortalities and domestic waste after the proposed expansion is subject to licensing as it is a listed activity (Category 8) in terms of Government Notice No. 248 as contemplated in Section 21(1)(a) of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM:AQA). An atmospheric emission license application is required for activities listed in terms of NEM: AQA.

Research and consultation is required to determine which technology, design and process would be the most economically, socially and environmentally sustainable option for the handling, storage and disposal of mortalities.

1.6 Proposed Locality

The site is located approximately 16.8km east of Standerton on Portion 48 of the farm Diepspruit 414 IS within the Lekwa Local Municipality of the Gert Sibande District Municipality, Mpumalanga Province. The GPS coordinates for the site are: 26°56'54.36"S; 29°25'1.53"E.

Table 2: Direction and distance to the nearest town

Closest town	Approximate distance from site	Direction from town
Standerton	16.8 km	East

The site locality map and site photos can be seen in Figure 2 to Figure 20 below.



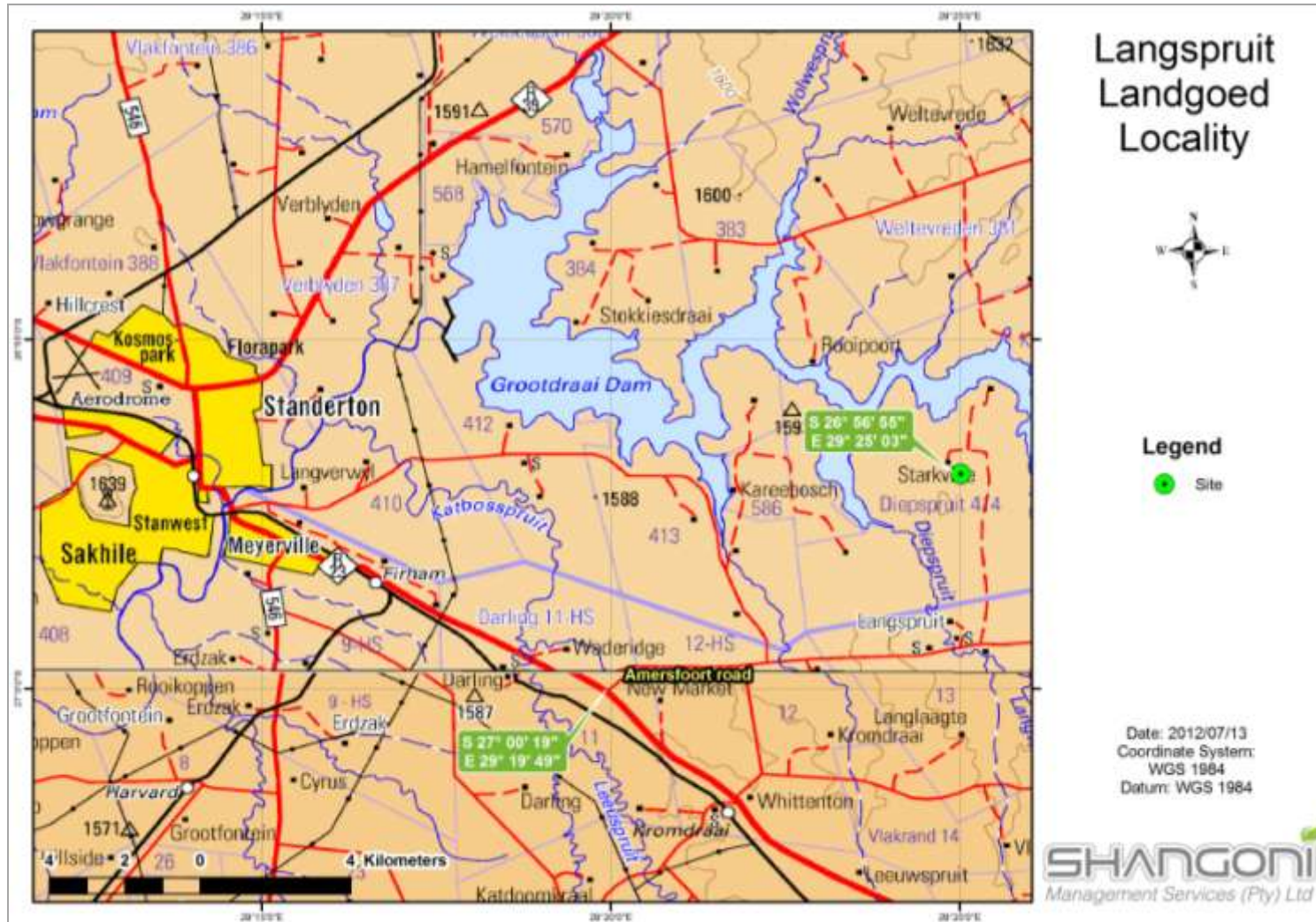


Figure 2: Site locality map.



Figure 3: Photograph of the current broiler houses.



Figure 4: Photograph of an existing poultry house and its feeding silos.





Figure 5: Photograph of a water reservoir, store room and JoJo tanks in the distance (at the existing broiler facility).



Figure 6: Photograph of the coal storage area and JoJo tanks at the existing broiler facility.

