Draft Basic Assessment Report

for

EAGLES PRIDE HATCHERY

VAALBOSCH BREEDERS

Prepared by:

Bucandi Environmental Solutions

Project Manager: Dr Hélen Prinsloo (D.Tech.)
(*Pr.Sci.Nat.*) Reg. No. 400108/11 (SACNASP)

June 2024

Table of contents

1. INTRODUCTION AND BACKGROUND

1.1 Background

Eagles Pride Hatchery is proposing the construction of 5 breeder houses with the capacity to hold up to 7 400 birds per house (total site capacity = 37 000) on Portion 3 of the farm Vaalbosch Vlakte 554 IN, situated in Stella District within Naledi Local Municipality area. The proposed project triggers a Basic Assessment for certain listed activities under Listing 1 and Listing 3 of NEMA (National Environmental Management Act, 1998). Bucandi Environmental Solutions (Bucandi) was requested by Eagles Pride Hatchery to conduct a Basic Assessment as part of the application for environmental authorisation.

1.2 Details of the project proponent

Company name: Eagles Pride Hatchery

Physical address: Portion 38 of the farm Roodeplaat 293 JR

Postal address: Private Bag X5, Montana Park, 0159

Contact person: Mr. Rudie Briel

Telephone number: 012 808-9930/1/2

Email address: rudie@kuipersgroup.co.za

1.3 Details of Environmental Assessment Practitioner (EAP)

Company name: Bucandi Environmental Solutions

Reg. No: 2009/087537/23

Physical address: 23 Burger Street
Viljoenskroon
9520

Postal address: P. O. Box 317
Viljoenskroon
9520

Project coordinator: Dr Hélen Prinsloo

Telephone number: 076 682 4369

Email address: helen@bucandi.co.za

Qualification: D.Tech (Conservation Management)

Experience: 15 years

Affiliation: SACNASP *Pri.Sci.Nat* 400108/11

Assistant: Marika Smook

Telephone number: 076 422 3484

Email address: info@bucandi.co.za

Please see Appendix G for a copy of the Curriculum Vitae for the EAP.

1.4 Details of specialists

Ecological Specialist: Dr Hélen Prinsloo

Telephone number: 076 682 4369

Email address: helen@bucandi.co.za

Qualification: D.Tech (Conservation Management)

Experience: 15 years

Affiliation: SACNASP *Pri.Sci.Nat* 400108/11

Ecological Specialist: Mr. Reinier F. Terblanche

Telephone number: 082 614 6684

Email address: reinierf.terblance@gmail.com

Qualification: M. Sc. Ecology (*cum laude*)

Experience: 26 years

Affiliation: SACNASP *Pri.Sci.Nat* 400244/05

2. LOCATION OF PROPOSED ACTIVITY

The study area is located 7.6 km north of Kameel in the Northwest Province within the Dr Ruth Segomotsi Mompati District Municipality and Naledi Local Municipality area (Appendix A). More specifically it is located on Portion 3 of the farm Vaalbosch Vlakte 554 IN, at 26º31'59.52" S; 25º00'33.4" E (Appendix A). A dirt road connecting Kameel to the N18 runs within 1 km of the site with a farm road providing access to the site. See Appendix A for the locality map and layout plans.

21-digit Surveyor General code	T0IN00000000055400003
Physical address and farm name	Portion 3 of the farm Vaalbosch Vlakte 554 IN
GPS coordinates	26º31'59.52" S; 25º00'33.4" E

3. SCOPE OF ACTIVITY

3.1 Listed activities triggered

The proposed activity triggers the following Listed Activities in terms of **Listing Notice 1 and 3 of Government Notice No. R327** published in Government Gazette No. 40772 of **7 April 2017** under the National Environmental Management Act, Act 107 of 1998:

Listing 1: (ACTIVITY NO. 5) The development and related operation of facilities or infrastructure for the concentration of (ii) more than 5 000 poultry per facility situated outside an urban area, excluding chicks younger than 20 days and (iv) more than 25 000 chicks younger than 20 days per facility situated outside an urban area.
(ACTIVITY NO. 27) The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.
Listing 3: (ACTIVITY NO. 12) The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (h) (iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority.

3.2 Description of activity

The activity will entail the construction of 5 environmentally controlled poultry houses (108 m x 15 m each). Each house will have the capacity for 7 400 birds. The entire site will be able to house up to 37 000 birds.
The project will entail the following:

- The clearance of 4.53 ha of indigenous vegetation, of which 3.25 ha is classified as Terrestrial Critical Biodiversity Area 2 (tCBA2). This is assessed as Activity 1 in Section 8 below.
- Earthworks on 4.53 ha to prepare for 5 poultry houses (Assessed as Activity 2 in Section 8 below.)
- Construction of 5 semi - environmentally controlled poultry houses (108 m x 15 m) with capacity for 7 400 birds per house, totalling 37 000 birds (Assessed as Activity 3 in Section 8 below).
- A silo and water tank will be erected next to each house.
- Powerlines will be connected to each house from a new Eskom point.
- Pipelines will be connected to each house from a new borehole.
- The site will be fenced off with a 2.4m high electric fence.

3.3 Relevant legislation

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act, Act No. 107 of 1998.	Department of Economic Development, Environment,	1998

Listing 1 of regulation 327 promulgated under Chapter 5 of the National Environmental Management Act (NEMA, Act 107 of 1998) in Government Gazette 40772. Listed activity 5 (ii), (iv) & 27.	Conservation and Tourism	1998
Listing 3: 12 (h) (iv)		1998
National Water Act, Act No. 36 of 1998.	Department of Water Affairs	
Conservation of Agricultural Resources Act, Act No. 43 of 1983	North West Department: Agriculture and Rural Development	1983
		2004
Air Quality Act, Act No. 39 of 2004.	Ngaka Modiri Molema District Municipality	2013
Reg. 983 published on 22 November 2013 in GN 37054		1999
Heritage Act, Act No 25 of 1999.	South African Heritage Resources Act	
		2000
Meat Safety Act, Act 40 of 2000	Department of Agriculture, Forestry and Fisheries	2008
National Environmental Management: Waste Act, Act No. 59 of 2008	Department of Economic Development, Environment, Conservation and Tourism	
Listed Activities Reg. 921 published on 29 November 2013 in GN 37083		
		1993
Occupational Health and Safety Act, Act 85 of 1993	Department of Labour	2003
Noise regulation, 2003	Department of Health and Safety	
		1987
Environmental regulations for workplaces, 1987	Department of Labour	1990
Facility regulations,1990	Department of Labour	1986
General Health and Safety Regulations, 1986	Department of Labour	2009
Electrical Installation Regulations,		

2009. Electrical Machinery Regulations, 1988. Construction Regulations, 2014	Department of Labour Department of Labour Department of Labour	1988 2014

4. NEED AND DESIRABILITY OF THE PROJECT

4.1 Need for operation of the facility

The facility will provide increased food availability; in particular poultry products. Poultry is highly desirable as a food item across all income groups in South Africa. Internationally production of poultry has increased significantly over the past few years in line with increased consumer demands for production of poultry and expectations are that consumer demand will continue to increase. Due to overcrowding of present facilities, lack of additional facilities and therefore the potential for increased biological risk, suppliers have embarked on a process of establishing new facilities in order to overcome these problems and ensure the long-term sustainability and viability of the industry. The socio-economic value of the project will indirectly have a positive impact on the immediate area as well as cater for the increasing demand for poultry in the Northwest Province and nationally. At least 50 temporary employment opportunities will be created during the development and construction phase. At least 80 additional people will be permanently employed during the operational phase of the activity. Contractors are employed during the construction phase and additional employment opportunities are therefore created.

4.2 Preferred location

A dirt road connecting Kameel to the N18 runs within 1 km of the site with a farm road providing access to the preferred site location. The preferred site located on indigenous vegetation that is currently used for game and cattle grazing. The site is largely flat (see complete site description in Section 5.1).

5. PROJECT ALTERNATIVES

5.1 Property or location alternatives

See Appendix B for site photographs and Appendix C for the site plans.

Site alternative 1 A (preferred site)

This site is located on 45 324.57 m^2 of indigenous vegetation of which 32 476.08 m^2 is classified as Terrestrial CBA 2. A dirt road connecting Kameel to the N18 runs within 1 km of the site with a farm road providing access to the preferred site location. S1 A is flat (slope =

1:25) and the costs and impacts of earthworks before construction will be minimal. A new Eskom point and boreholes will be connected to the proposed poultry houses. The site is located relatively high and stays dry year-round.

5.2 Activity alternatives

Preferred activity

Environmentally controlled poultry houses (approximately 108 m X 1 5m) will be constructed with a capacity for 7 400 birds per house. A water tank and a silo for food will be constructed next to each house with underground pipelines connecting the water tanks with the new boreholes. A 2.4m electric fence with an entry gate (with biosecurity control measures) will be constructed around the site. A biosecurity house will be erected containing an office as well as a bathroom and showers. Electricity lines will be connected to the water tanks and all the houses.

Activity alternative 2

The site lay-out will be exactly as for A1, but the chicken houses will be open and not environmentally controlled. The differences between closed houses (A1) and open houses (A2) are as follows:

	A1 – Environmentally controlled	A2 – Open
Isolation value (R)	12	1.5
Heat capacity	1 100kW	1 500kW
Chickens/m^2	14	13
Energy saving	20%	0%

No-go alternative

The site is currently used as grazing for game and cattle and will continue to be used as such if the proposed development does not go ahead.

5.3 Design or layout alternatives

Apart from the site alternatives, no design or layout alternatives are being considered.

5.4 Technology alternatives

No technology alternatives were considered for the proposed project.

5.5 Operational alternatives

No operational alternatives were considered for the proposed project.

5.6 The “no-go” activity alternative

The “no-go” alternative will entail using the land for grazing of cattle and game.

6. PUBLIC PARTICIPATION PROCESS

Application submitted: June 202
Public Participation May 2024
BAR: June 2024
A notice was placed in the Stellalander local newspaper on the 1st of May 2024, see proof in Appendix D1. Letters was sent you to all I&AP's on the 1st of May 2024, see proof in Appendix D 3. A copy of the draft BAR will be sent to all I&APs.

7. ENVIRONMENTAL ATTRIBUTES

7.1 Geographical attributes

7.1.1 Gradient of the site

The proposed site is located on a plateau with a gentle slope (1: 76) towards the west.

7.1.2 Soils

The property is located on landtype Bc16. Soils for this landtype include the following:
Rock – 1.8%
Panes - 1.8%

Soil type	Depth (mm)	% Occurrence	% Clay in A horizon	% Clay in B horizon
Mispah Ms10, Mangano Hu33	100 – 250	0.2	6 - 15	8 - 15
Annandale Cv33, Blinkklip Cv36, Dudfield Cv46	450 - 900	31.4	8 - 15	12 - 25
Shorrocks Hu36	450 - 800	23.8	10 - 15	15 - 25
Soetmelk Av36, Bleeksand Av33	600 - 900	23.8	8 - 15	10 - 25
Bainsvlei Bv36	600 - 900	4.8	8 - 15	15 - 30
Soetmelk Av36	600 - 900	4.8	15 - 25	25 - 35
Mangano Hu33	450 - 900	3.8	6 - 10	6 - 15
Klipfontein Ms11, Mispah Ms10, Loskop Ms12, Kalkbank Ms22	100 - 300	2.5	6 - 15	
Moriah Hu32, Portsmouth Hu35	450 - 700	1.0	3 - 8	4 - 10
Lindley Va41	200 - 300	0.6	8 - 15	35 - 45

The landtype is dominated by soils with low clay content in the A horizon. There are no soils with a high clay content (above 40%) in the A horizon (typically associated with proximity to water bodies and / or a shallow water table) present in this landtype.

7.1.3 Geology

Geology for this landtype consist predominantly of andesitic to basaltic lavas of the Ventersdorp Supergroup, sometimes overlain by calcrete. Swazian granite occurs in places.

7.2 Biological attributes

7.2.1 Ground cover and vegetation

The proposed site is located on indigenous vegetation in a relatively good condition. The site was cultivated in the past and secondary succession has taken place. A modified savanna is currently present at the site. Vegetation is an open savanna with large grassy patches. Indigenous trees at the site include *Vachellia karroo*, *Searsia lancea*, *Vachellia hebeclada*, *Vachellia erioloba* and *Grewia flava*. Shrub species such as *Lycium horridum*, *Hertia pallens*, *Laggera decurrens* as well as dwarf shrubs such as *Felicia muricata*, *Ziziphus zeyheriana* and *Pentzia globosa* are present at the site. Indigenous grass species at the site include *Aristida congesta*, *Melinis repens*, *Cynodon dactylon*, *Eragrostis lehmanniana*, *Tragus racemosus* and *Cenchrus ciliarus*. Indigenous forb species at the site include *Barleria macrostegia*, *Osteospermum muricatum* and *Lippia scaberrima*. The alien invasive tree species *Prosopis glandulosa* is present at the site. Alien invasive herbaceous weeds at the site include *Gomphrena celosioides*, *Schkuhria pinnata* and *Alternanthera pungens*. A permit must be applied for if any damage or removal of the individual *Vachellia erioloba* trees, at the site, cannot be avoided.

7.2.2 Biodiversity classification

The majority of the proposed site is located Terrestrial Critical Biodiversity Area 2.

7.2.3 Sensitive areas

An ecological assessment was conducted to determine the ecological sensitivity of the site (See Appendix F-7). There are no wetlands, rocky ridges or Threatened ecosystems at the site. No Threatened or Near Threatened plant- or animal species appear to be resident at the site. No other plant species of particular conservation concern appears to be present at the site with the exception of the Protected tree species *Vachellia erioloba* (Camel Thorn Tree) of which a few individuals occur at the site. A permit will be needed if any damage or removal of the individual Protected trees, at the site, cannot be avoided.

7.3 Physical attributes

7.3.1 Waste generation

Activity alternative 1 (Preferred alternative)

Construction Phase

An estimated 2 m^3 of solid waste will be produced per month during the Construction Phase. Waste is expected to be limited to packaging materials (shrink wrap, cardboard) and litter generated by the construction staff. It will also contain leftover building materials such as cement or concrete, and PVC panelling. All the leftover building materials will be removed by the building contractor. Waste will be recycled as far as possible. Non-recyclable waste will be sorted into different types and disposed of at a suitably licensed waste disposal facility.

Construction phase solid waste will be disposed of at the nearest licensed waste disposal site. Waste considered unsuitable for municipal waste disposal sites will be disposed of at a suitably licensed hazardous waste disposal facility (e.g. WasteTech).

Operational Phase

An estimated 40 m^3 of solid waste will be produced per month during the Operational Phase. Solid waste will be disposed of at the nearest licensed waste disposal. Waste considered unsuitable for municipal waste disposal sites will be disposed of at a suitably licensed hazardous waste disposal facility (e.g. WasteTech). Any general waste such as litter generated by staff will be disposed of at the nearest licensed waste disposal site.

Manure Removal
Approximately 0.5 tons of chicken manure will be produced monthly. Chickens are kept for a 55-week cycle. Manure will be removed on a regular basis and used on agricultural fields. At the end of each cycle, all the manure and litter are removed from the houses using bobcats and loaded directly on truck to be removed by the contractor. After all the manure has been removed, the houses are treated with a foam disinfectant to kill any remaining bacteria. After that process the floors are sprayed with water using pressure washers. The resulting wash water does not present a contamination risk as the houses are sterilised before being sprayed with water.

Disposal of Mortalities
Approximately 310 dead chickens will be produced monthly. The carcasses are removed on a daily basis and collected by a contractor (Daan Erasmus - Lion farm).

Activity alternative 2

Construction Phase
An estimated 2 m^3 of solid waste will be produced per month during the Construction Phase. Waste is expected to be limited to packaging materials (shrink wrap, cardboard) and litter generated by the construction staff. It will also contain leftover building materials such as cement or concrete, and PVC panelling. All the leftover building materials will be removed by the building contractor. Waste will be recycled as far as possible. Non-recyclable waste will be sorted into different types and disposed of at a suitably licensed waste disposal facility.
Construction phase solid waste will be disposed of at the nearest licensed waste disposal site. Waste considered unsuitable for municipal waste disposal sites will be disposed of at a suitably licensed hazardous waste disposal facility (e.g. WasteTech).

Operational Phase
An estimated 40 m^3 of solid waste will be produced per month during the Operational Phase. Solid waste will be disposed of at the nearest licensed waste disposal. Waste considered unsuitable for municipal waste disposal sites will be disposed of at a suitably licensed hazardous waste disposal facility (e.g. WasteTech). Any general waste such as litter generated by staff will be disposed of at the nearest licensed waste disposal site.

Manure Removal
Approximately 0.5 tons of chicken manure will be produced monthly. Chickens are kept for a 55-week cycle. Manure will be removed on a regular basis and used on agricultural fields. At the end of each cycle, all the manure and litter are removed from the houses using bobcats and loaded directly on truck to be removed by the contractor. After all the manure has been

removed, the houses are treated with a foam disinfectant to kill any remaining bacteria. After that process the floors are sprayed with water using pressure washers. The resulting wash water does not present a contamination risk as the houses are sterilised before being sprayed with water.

Disposal of Mortalities
Approximately 310 dead chickens will be produced monthly. The carcasses are removed on a daily basis and collected by a contractor (Daan Erasmus - Lion farm).

No-go alternative
No solid waste will be produced.

7.3.2 Liquid effluent

Activity alternative 1 (Preferred alternative)
At the end of each cycle, all the manure and litter are removed from the houses using bobcats and loaded directly on truck to be used on agricultural fields. After all the manure has been removed, the houses are treated with a foam disinfectant to kill any remaining bacteria. After that process the floors are sprayed with water using pressure washers. The resulting wash water does not present a contamination risk as the houses are sterilised before being sprayed with water.

Activity alternative 2
At the end of each cycle, all the manure and litter are removed from the houses using bobcats and loaded directly on truck to be used on agricultural fields. After all the manure has been removed, the houses are treated with a foam disinfectant to kill any remaining bacteria. After that process the floors are sprayed with water using pressure washers. The resulting wash water does not present a contamination risk as the houses are sterilised before being sprayed with water.

No-go alternative
No liquid effluent will be produced.

7.3.3 Atmospheric emissions

Activity alternative 1 (Preferred alternative)
Since the houses will be environmentally controlled poultry houses, the amounts of dust, ammonia and odours released into the atmosphere will be minimal.

Activity alternative 2
If this activity alternative is chosen, open houses will be used and relatively high amounts of dust, ammonia and odours will be released into the atmosphere, being of some discomfort to neighbours.

No-go alternative
No liquid effluent will be produced.

7.3.4 Noise

Activity alternative 1 (Preferred alternative)
Low levels of noise will be produced by the chickens in the houses.

Activity alternative 2
Low levels of noise will be produced by the chickens in the houses.

No-go alternative
Low levels of noise will be produced during cultivation of the fields.

7.3.5 Water use

Activity alternative 1 (Preferred alternative)
The activity will use approximately 1 296 000 litres of water per month. This will be sourced from groundwater through a new borehole.

Activity alternative 2
The activity will use approximately 216 000 litres of water per month. This will be sourced from groundwater through a new borehole.

No-go alternative
The activity will not use water.

7.3.6 Energy efficiency

Activity alternative 1 (Preferred alternative)
Because of a higher isolation (R) value (12 for semi - environmentally controlled poultry houses 1.5 for open houses) the use of fans for cooling in summer are much lower in closed houses than in open houses. During winter, closed houses also retain heat much longer and need substantially less heating than open houses. Energy efficient fans are also used. All the houses are fitted with a day light switch in order for outside lights only to be on when absolutely necessary. All lights inside the house make use of energy saving light bulbs.

Activity alternative 2
Open houses have a much lower isolation (R) value (12 for semi - closed houses versus 1.5 for open houses), but canvas “walls” are opened or closed to regulated the temperature inside the houses to a degree. During winter, open houses have a poor heat retention rate and more energy is needed for heating. All the houses are fitted with a day light switch in order for outside lights only to be on when absolutely necessary. All lights inside the house make use of energy saving light bulbs.

No-go alternative
The activity will not use electricity.

7.4 Human environment

7.4.1 Heritage and cultural attributes

There are no artefacts of cultural or heritage importance at the site. If any artefacts are discovered construction will seize and a Heritage Specialist will be contacted.

7.4.2 Socio-economic attributes

The Naledi Local Municipality is a Category B municipality situated in the western part of the Dr Ruth Segomotsi Mompati District in the North West Province. It is bordered by the Ngaka Modiri Molema District in the north, Greater Taung in the south, Mamusa in the east, and Kagisano-Molopo in the west. It is the second-largest of the five municipalities that make up the district, accounting for 16% of its geographical area. It is known as the Texas of South Africa because of the cattle breeding and agricultural activities that take place there.

Area: 7 032km²
Cities/Towns: Stella, Vryburg
Main Economic Sectors: Agriculture and hunting (27.8%)

Education (aged 20 +):
No schooling: 9.9%
Higher education: 8.5%
Matric: 30%

The proposed development will contribute to social and economic uplifted through the addition of capital value and income generation to the region, as well as job creation. The table below summarises the expected relevant contributions.

Aspect	Activity alternative 1 (preferred activity)	Activity alternative 2	No-go alternative
Capital value	R 30 000 000.00	R 30 000 000.00	R 0
Annual income generation	R 30 000 000.00	R 30 000 000.00	R 0
Employment opportunities during construction	50	50	0
Value of employment opportunities during construction	R 985 600.00	R 985 600.00	R 0
Percentage to previously disadvantaged	95%	95%	0
Permanent employment opportunities	15	15	0
Value of permanent employment for 10 years	R 1 310 400.00	R 1 310 400.00	R 0
Percentage to disadvantaged	90%	90%	0

8. POTENTIAL IMPACTS

The impact assessment in this section considered the following activities and the impact of each of the activities:
Activity 1: The clearance of 4.53 ha of indigenous vegetation.
Activity 2: Earthworks on a total of 4.53 ha to prepare for the construction of 5 poultry houses.
Activity 3: Construction of the poultry facility.
Activity 4: Operation of the poultry facility.

8.1 Full description of impacts and risks identified

Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts and the degree to which these impacts can be mitigated

8.1.1 Activity alternative 1 – Construction of six environmentally controlled poultry houses (preferred activity)

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
1-3	Air pollution on a local level.	2	1	2	1	3	Low	Negative	This impact is not reversible, but can be completely avoided by the following measures: Dust control by means of watering if necessary. Vehicles to be regularly serviced and well-tuned. Operations to be undertaken during working hours only.
1-3	Contamination of soils, surface water and groundwater due to leakages from vehicles	1	1	2	3	3	Low	Negative	This impact is not reversible, but can be completely avoided by the following measures: Machinery must be properly maintained at all times. Servicing of

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
	entering and exiting the site.								machinery must take place only in specific demarcated and protected areas. Measures must be taken for the proper disposal of oils, grease, oil filters, rags, etc.
3, 4	Pollution of soil, surface water and groundwater due to ineffective management of sewage and general waste management.	3	3	3	2	3	Medium	Negative	This impact is not reversible, but can be completely avoided by the following measures: Proper ablution facilities must be provided i.e. chemical toilets at appropriate locations on site if necessary or existing facilities must be used. Workers must be made aware of the risk of soil water contamination. Domestic waste must be disposed of in appropriate containers, and removed to the nearest municipal waste-disposal site as part of existing waste management system.
4	Pollution of soil, surface water and groundwater due to ineffective manure disposal.	3	3	3	2	3	Medium	Negative	This impact is not reversible, but can be completely avoided by the following measures: The manure is removed on a regular basis and used on agricultural fields. Manure should

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									be handled according to Odour Management Plan (Appendix F2), Waste Management Plan (Appendix F3) and Biosecurity Plan (Appendix F4). At the end of each cycle, all the manure and litter are removed from the houses using bobcats and loaded directly on truck to be removed by the contractor. After all the manure has been removed, the houses are treated with a foam disinfectant to kill any remaining bacteria. After that process the floors are sprayed with water using pressure washers. The resulting wash water does not present a contamination risk as the houses are sterilised before being sprayed with water.
4	Pollution of soil, surface water and groundwater due to ineffective disposal of mortalities	3	3	3	2	3	Medium	Negative	This impact is not reversible, but can be completely avoided by the following measures: The mortalities are removed on a daily basis and collected by a contractor.
1-4	Soil compaction and loss of fertility.	1	1	2	3	3	Low	Negative	This impact is not reversible, but can be completely avoided by the

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									following measures: Appropriate measures must be taken to reduce the risk of erosion from unprotected slopes i.e. diversion berms, ponding pools, and not exceeding angles of repose of stockpiled material. All unprotected slopes must be rehabilitated concurrent with construction.
2-4	Increased fire risk	1	1	2	3	3	Low	Negative	This impact is not reversible, but can be completely avoided by the following measures: Cooking and heating fires permitted only in designated areas with appropriate safety measures. Adequate firefighting equipment must be available, as prescribed by the relevant safety standards and legislation.
1-4	Disturbance of fauna	3	3	3	2	3	Medium	Negative	This impact is not reversible, but can be completely avoided by the following measures: Only small animals occur in this area e.g. small rodents and reptiles. The area is surrounded by similar habitat and fauna is expected to move voluntarily to surrounding

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									areas. No fauna found on the site will be killed.
1-3	Disturbance of flora	1	5	5	1	5	High	Negative	This impact is not reversible and cannot be avoided. Clearance of vegetation should be kept at a minimum and restricted to the proposed site boundary.
1	Removal of indigenous vegetation	1	5	5	1	5	High	Negative	In the event of any Protected or Declining species being recorded within the approved development site, permission for the removal of such species should be obtained from the Permitting Office of DEDECT, and the appropriate in situ and / or ex situ conservation measures should be developed and implemented with the approval of the DEDECT conservation authorities. Where feasible, protected or Declining species can be translocated to degraded or untransformed parts of the study area which provide potentially suitable habitat, but such translocations will have to be carried out in a way that ensures no ecological degradation of the host habitat occurs, and will have

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									to be evaluated by an ecologist for each species and each potential translocation area. Alternatively, protected or Declining species can be rescued and donated to appropriate conservation and research institutions such as the Walter Sisulu National Botanical Garden (Roodepoort) or the Pretoria National Botanical Garden of SANBI Where possible, development should avoid habitat identified with high ecological sensitivity. According to the AIS regulations all declared alien weeds must be effectively controlled or eradicated. A permit will be needed if any damage or removal of the individual Protected trees, at the site, cannot be avoided.
1-3	Safety on the construction site	4	5	5	3	3	High	Negative	This impact is not reversible, but can be completely avoided by the following measures: Access to the construction site to be controlled at all times.
1-4	Degradation of aesthetics	3	5	3	2	4	High	Negative	This impact is not reversible, but can be mitigated and minimised.

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									If needed, an additional line of trees will be planted to minimise visual impact.
1-4	The construction and operation of the poultry facility will provide employment opportunities to the local communities.	4	4	3	1	5	High	Positive	No mitigation suggested.

8.1.2 Activity alternative 2 – Construction of open poultry houses

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
1-3	Air pollution on a local level.	2	1	2	1	3	Low	Negative	This impact is not reversible, but can be completely avoided by the following measures: Dust control by means of watering if necessary. Vehicles to be regularly serviced and well-tuned. Operations to be undertaken during working hours only.
1-3	Contamination of soils, surface water and groundwater	1	1	2	3	3	Low	Negative	This impact is not reversible, but can be completely avoided by the following measures:

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
	due to leakages from vehicles entering and exiting the site.								Machinery must be properly maintained at all times. Servicing of machinery must take place only in specific demarcated and protected areas. Measures must be taken for the proper disposal of oils, grease, oil filters, rags, etc.
3,4	Pollution of soil, surface water and groundwater due to ineffective management of sewage and general waste management.	3	3	3	2	3	Medium	Negative	This impact is not reversible, but can be completely avoided by the following measures: Proper ablution facilities must be provided i.e. chemical toilets at appropriate locations on site if necessary or existing facilities must be used. Workers must be made aware of the risk of soil water contamination. Domestic waste must be disposed of in appropriate containers, and removed to the Nearest municipal waste-disposal site as part of existing waste management system.
4	Pollution of soil, surface water and groundwater due to ineffective manure	3	3	3	2	3	Medium	Negative	This impact is not reversible, but can be completely avoided by the following measures: The manure is removed on a

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
	disposal.								regular basis and used on agricultural fields. Manure should be handled according to Odour Management Plan (Appendix F2), Waste Management Plan (Appendix F3) and Biosecurity Plan (Appendix F4). At the end of each cycle, all the manure and litter are removed from the houses using bobcats and loaded directly on truck to be removed by the contractor. After all the manure has been removed, the houses are treated with a foam disinfectant to kill any remaining bacteria. After that process the floors are sprayed with water using pressure washers. The resulting wash water does not present a contamination risk as the houses are sterilised before being sprayed with water.

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
4	Pollution of soil, surface water and groundwater due to ineffective disposal of mortalities.	3	3	3	2	3	Medium	Negative	This impact is not reversible, but can be completely avoided by the following measures: The mortalities are removed on a daily basis and collected by a contractor.
1-3	Soil compaction and loss of fertility.	1	1	2	3	3	Low	Negative	This impact is not reversible, but can be completely avoided by the following measures: Appropriate measures must be taken to reduce the risk of erosion from unprotected slopes i.e. diversion berms, ponding pools, and not exceeding angles of repose of stockpiled material. All unprotected slopes must be rehabilitated concurrent with construction.
2-4	Increased fire risk	1	1	2	3	3	Low	Negative	This impact is not reversible, but can be completely avoided by the following measures: Cooking and heating fires permitted only in designated areas with appropriate safety measures. Adequate firefighting equipment must be available, as prescribed by the relevant safety standards and

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									legislation.
1-4	Disturbance of fauna	3	3	3	2	3	Medium	Negative	This impact is not reversible, but can be completely avoided by the following measures: Only small animals occur in this area e.g. small rodents and reptiles. The area is surrounded by similar habitat and fauna is expected to move voluntarily to surrounding areas. No fauna found on the site will be killed.
1-3	Disturbance of flora	1	5	5	1	5	High	Negative	This impact is not reversible and cannot be avoided. Clearance of vegetation should be kept at a minimum and restricted to the proposed site boundary.
1	Removal of indigenous vegetation	1	5	5	1	5	High	Negative	In the event of any Protected or Declining species being recorded within the approved development site, permission for the removal of such species should be obtained from the Permitting Office of DEDECT, and the appropriate in situ and / or ex situ conservation measures should be developed and implemented with the approval of the DEDECT conservation authorities. Where feasible, protected or Declining species can

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									be translocated to degraded or untransformed parts of the study area which provide potentially suitable habitat, but such translocations will have to be carried out in a way that ensures no ecological degradation of the host habitat occurs, and will have to be evaluated by an ecologist for each species and each potential translocation area. Alternatively, protected or Declining species can be rescued and donated to appropriate conservation and research institutions such as the Walter Sisulu National Botanical Garden (Roodepoort) or the Pretoria National Botanical Garden of SANBI Where possible, development should avoid habitat identified with high ecological sensitivity. According to the AIS regulations all declared alien weeds must be effectively controlled or eradicated. A permit will be needed if any damage or removal of the individual Protected trees, at the

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									site, cannot be avoided.
1-3	Safety on the construction site	4	5	5	3	3	High	Negative	This impact is not reversible, but can be completely avoided by the following measures: Access to the construction site to be controlled at all times.
1-3	Degradation of aesthetics	3	5	3	2	4	High	Negative	This impact is not reversible, but can be mitigated and minimised. If needed, an additional line of trees will be planted to minimise visual impact.
1-4	The construction and operation of the poultry facility will provide employment opportunities to the local communities.	3	4	3	1	5	High	Positive	No mitigation suggested.

8.1.3 “No-go” alternative – Grazing

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
N/A	Air pollution on a local level.	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									site. No mitigation recommended.
N/A	Contamination of soils, surface water and groundwater due to leakages from vehicles entering and exiting the site.	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the site. No mitigation recommended.
N/A	Pollution of soil, surface water and groundwater due to ineffective management of sewage and general waste management.	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the site. No mitigation recommended.
N/A	Pollution of soil, surface water and groundwater due to ineffective manure disposal.	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the site. No mitigation recommended.

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
N/A	Pollution of soil, surface water and groundwater due to ineffective disposal carcasses.	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the site. No mitigation recommended.
N/A	Soil compaction and loss of fertility.	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the site. No mitigation recommended.
N/A	Increased fire risk	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the site. No mitigation recommended.
N/A	Disturbance of fauna	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the site. No mitigation recommended.
N/A	Safety on the construction site	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the

*Activity	Specific Impact & Risk	Extent	Duration	Severity	Degree of Certainty	Probability	Significance prior to mitigation	Status of Impact	Reversibility/Mitigation Measures to be Implemented
									site. No mitigation recommended.
N/A	Degradation of aesthetics	2	1	2	1	3	Low	Negative	No additional activity will take place, only agriculture that already exists on the site. No mitigation recommended.

8.2 Methodology of determining impacts

- Various site visits were conducted by the EAP and information was gathered regarding the nature of the process and the baseline environment.
- Comments were gathered from Marico River Conservation Association in order to identify additional possible impacts that may have been overlooked.
- The significance of identified impacts was determined as follows:

- **Extent**

The extent of the impact refers to the spatial dimension to which an impact will be felt (i.e. site, study area, local, regional, or national scale). The criteria for rating the impact extent are described in more detail in Table 1**.**

Table 1: Extent of Impact

Extent

Rating	1	2	3	4	5
Description	On site or the impact will be restricted to its immediate area	Study area Or the impact will be restricted to the site or route	Local Or the impact will affect an area up to 5 km from the site and route	Regional/Provincial Or the impact will be felt on a Local, district municipal or Provincial level	National/International Or the maximum extent of any impact

- **Duration**

In order to accurately describe the impact, it is necessary to understand the duration and persistence of an impact in the environment. The criteria for rating the duration of the impact are described in more detail in Table 2.

Table 2: Duration of Impact

Duration					
Rating	1	2	3	4	5
Description	Temporary Or the impact will occur very sporadically or less than 1 year from commencement of activity	Short-term Or the impact will continue to occur for a period between 1 to 5 years from commencement of activity	Medium term Or the impact will continue to occur for a period between 5 to 10 years from commencement of activity	Long term Or the impact will continue to occur for a period longer than 10 years from commencement of activity	Permanent Or the impact will be continued until the conclusion of activity

- **Severity**

A description must be given as to whether an impact is destructive, or benign. It determines whether the intensity of the impact on the natural environment or society is permanently, significantly changes its functionality, or slightly alters it. The mitigation potential must be determined for

each impact. If limited information or expertise exists, estimates based on experience will be made. The criteria for rating the severity of the impact are described in more detail in Table 3.

Table 3: Severity of Impact

Severity					
Rating	1	2	3	4	5
Description	Temporary impact easily reversible. Insignificant change or deterioration or disturbance Or improvement of natural and social environments	Short-term impact. Low cost to mitigate Small Moderate change or deterioration or disturbance Or improvement of natural and social environments	Medium term impact, which require substantial cost to mitigate. Potential to mitigate and potential to reverse impact Significant change or deterioration or disturbance Or improvement of natural and social environments	Long term impact High cost to mitigate Possible to mitigate Very significant change or deterioration or disturbance Or improvement of natural and social environments	Permanent impact Prohibitive cost to mitigate Little or no mechanism to mitigate Irreversible Disastrous change or deterioration or disturbance or improvement of natural and social environments

- **Degree of certainty**

As with all studies it is not possible to be 100% certain of all facts and for this reason a standard “Degree of certainty” scale is used as discussed in Table 4.

Table 4: Degree of Certainty of Impact Occurrence

Degree of Certainty					
Rating	1	2	3	4	5
Description	Definite Or more than 90% sure of the fact or the likelihood of the impact occurring	Probable Or between 70% and 90% sure of the fact or the likelihood of the impact occurring	Possible Or between 40% and 70% sure of the fact or the likelihood of the impact occurring	Unsure Or less than 40% sure of the fact or the likelihood of the impact occurring.	Unknown or the consultant or specialist believes an assessment is not possible even with additional research.

- **Probability**

The criteria used for rating the likelihood of impact occurrence are described in more detail in Table 5.

Table 5: Probability of Impact Occurrence

Probability					
Rating	1	2	3	4	5
Description	Impossible Or the impact will not occur	Improbable Or the possibility of the impact occurring is very low	Probable Or there is a possibility that the impact will occur, provision must be provided	Highly probable Or it is most likely that the impact will occur at some stage, provision must be provided	Definite Or the impact will take place regardless of any prevention plans and there can only be relied on mitigation measures to contain the impact

- **Significance**

Evaluating the significance of environmental impacts is a critical component of impact analysis. The matrix uses the consequence and the probability of the different activities and associated impacts to determine the significance of the impacts. Consequence is determined by the sum total of criteria like extent, duration and severity, degree of certainty of impact as well as compliance to applicable legislation. Values of 1-5 are assigned to each of the different criteria to determine the overall consequence, which is divided by 3 to give a criterion rating.

The overall consequence and probability rating are multiplied to give a final significance rating. The values as shown in the following table are then used to rank the significance. It must be said however that in the end, a subjective judging of an impact can still be done, but the reasons for doing so must be qualified. The matrix used to determine the significance of each of the identified impact in this study is shown in Table 6.

Table 6: Impact Significance Matrix

Impact Significance Matrix					
Rating	Very Low	Low	Medium	High	Very High
	1-4	5-10	11-15	16-20	21-25+
Description	There is little or no impact at all	Impact is of a low order and therefore likely to have little real effect In the case of adverse impacts: mitigation and or remedial activity is either easily achieved or little will be required, or both In the case of beneficial impacts, alternative means for	Impact is real but not substantial in relation to other impacts, which might take effect within the bounds of those which could occur In the case of adverse impacts: mitigation and or remedial activity are both feasible and fairly easily possible	Impact is of substantial order within the bounds of impacts which could occur In the case of adverse impacts: mitigation and or remedial activity are feasible but difficult, expensive, time- consuming or some combination In the case of	Of the highest order possible within the bounds of impacts which could occur In the case of adverse impacts: there is no possible mitigation and or remedial activity which could offset the impact In the case of beneficial impacts,

		achieving this benefit are likely to be easier, cheaper, more effective, less time consuming, or some combination of these.	In the case of beneficial impacts: other means of achieving this benefit are about equal in time, cost, effort, etc.	beneficial impacts, other means of achieving this benefit are feasible but they are more difficult, expensive, time-consuming or some combination of these.	there is no real alternative to achieving this benefit.

Table 7: How to Apply the Rating Scale

Consequence
Impact Significance = (Extent + Duration + Severity + Degree of Certainty)/3] X Probability

8.3 Summary of positive and negative impacts

Specific impact or risk	Preferred activity (Activity alternative 1)	Activity alternative 2	"No-go" alternative
Air pollution on a local level.	Negative	Negative	No impact
Contamination of soils, surface water and groundwater due to leakages from vehicles entering and exiting the site.	Negative	Negative	Negative
Pollution of soil, surface water and groundwater due to ineffective management of sewage and general waste management.	Negative	Negative	Negative
Pollution of soil, surface water and groundwater due to ineffective manure disposal.	Negative	Negative	No impact
Pollution of soil, surface water and groundwater due to ineffective disposal of mortalities.	Negative	Negative	No impact
Soil compaction and loss of fertility.	Negative	Negative	No impact
Increased fire risk	Negative	Negative	No impact
Disturbance of fauna	Negative	Negative	No impact
Disturbance of flora	Negative	Negative	No impact
Removal of indigenous vegetation	Negative	Negative	No impact
Safety on the construction site	Negative	Negative	No impact
Degradation of aesthetics	Negative	Negative	Negative
The construction and operation of the poultry facility will provide employment opportunities to the local communities.	Positive	Positive	No impact

8.4 Mitigation measures

Specific impact or risk	Mitigation measures
Air pollution on a local level.	Dust control by means of watering if necessary. Vehicles to be regularly serviced and well-tuned. Operations to be undertaken during working hours only.
Contamination of soils, surface water and groundwater due to leakages from vehicles entering and exiting the site.	Machinery must be properly maintained at all times. Servicing of machinery must take place only in specific demarcated and protected areas. Measures must be taken for the proper disposal of oils, grease, oil filters, rags, etc.
Pollution of soil, surface water and groundwater due to ineffective management of sewage and general waste management.	Proper ablution facilities must be provided i.e. chemical toilets at appropriate locations on site if necessary or existing facilities must be used. Workers must be made aware of the risk of soil water contamination. Domestic waste must be disposed of in appropriate containers, and removed to the nearest municipal waste-disposal site as part of existing waste management system.
Pollution of soil, surface water and groundwater due to ineffective manure disposal.	The manure is removed on a regular basis and used on agricultural fields. Manure should be handled according to Odour Management Plan (Appendix F2), Waste Management Plan (Appendix F3) and Biosecurity Plan (Appendix F4). At the end of each cycle, all the manure and litter are removed from the houses using bobcats and loaded directly on truck to be removed by the contractor. After all the manure has been removed, the houses are treated with a foam disinfectant to kill any remaining bacteria. After that process the floors are sprayed with water using pressure washers. The resulting wash water does not present a contamination risk as the houses are sterilised before being sprayed with water.
Pollution of soil, surface water and groundwater due to ineffective disposal of mortalities.	The mortalities are removed on a daily basis and collected by a contractor.
Soil compaction and loss of fertility.	Appropriate measures must be taken to reduce the risk of erosion from unprotected slopes i.e. diversion berms, ponding pools, and not exceeding angles of repose of stockpiled material. All unprotected slopes must be rehabilitated concurrent with construction.
Increased fire risk	Cooking and heating fires permitted only in designated areas with appropriate safety measures. Adequate firefighting equipment must be available, as prescribed by the relevant safety standards and legislation.

Disturbance of fauna	Only small animals occur in this area e.g. small rodents and reptiles. The area is surrounded by similar habitat and fauna is expected to move voluntarily to surrounding areas. No fauna found on the site will be killed.
Disturbance of flora	Clearance of vegetation should be kept at a minimum and restricted to the proposed site boundary.
Removal of indigenous vegetation	In the event of any Protected or Declining species being recorded within the approved development site, permission for the removal of such species should be obtained from the Permitting Office of DEDECT, and the appropriate in situ and / or ex situ conservation measures should be developed and implemented with the approval of the DEDECT conservation authorities. Where feasible, protected or Declining species can be translocated to degraded or untransformed parts of the study area which provide potentially suitable habitat, but such translocations will have to be carried out in a way that ensures no ecological degradation of the host habitat occurs, and will have to be evaluated by an ecologist for each species and each potential translocation area. Alternatively, protected or Declining species can be rescued and donated to appropriate conservation and research institutions such as the Walter Sisulu National Botanical Garden (Roodepoort) or the Pretoria National Botanical Garden of SANBI Where possible, development should avoid habitat identified with high ecological sensitivity. According to the AIS regulations all declared alien weeds must be effectively controlled or eradicated. A permit will be needed if any damage or removal of the individual Protected trees, at the site, cannot be avoided.
Safety on the construction site	Access to the construction site to be controlled at all times.
Degradation of aesthetics	If needed, an additional line of trees will be planted to minimise visual impact.
The construction and operation of the poultry facility will provide employment opportunities to the local communities.	No mitigation suggested.

8.5 Motivation for alternative selection

The proposed activity alternative was selected as it will have minimal impact on the environment after mitigation measures have been implemented.

8.6 Impact of activity on preferred location

The table below provides a description of the significance of each identified activity on the preferred site location throughout the life of the proposed project.

Specific risk or activity	Significance before mitigation	Significance after mitigation
Air pollution on a local level.	Low	Low
Contamination of soils, surface water and groundwater due to leakages from vehicles entering and exiting the site.	Low	Low
Pollution of soil, surface water and groundwater due to ineffective management of sewage and general waste management.	Medium	Low
Pollution of soil, surface water and groundwater due to ineffective manure disposal.	Medium	Low
Pollution of soil, surface water and groundwater due to ineffective disposal of mortalities.	Medium	Low
Soil compaction and loss of fertility.	Low	Low
Increased fire risk	Low	Low
Disturbance of fauna	Medium	Low
Disturbance of flora	High	Medium
Removal of indigenous vegetation	High	Medium
Safety on the construction site	High	Low
Degradation of aesthetics	High	Low
The construction and operation of the poultry facility will provide employment opportunities to the local communities.	High	High

8.7 Description and assessment of each impact

1. **Impact:** Air pollution on a local level. Possibly caused by Activities 1-33.
This is not a cumulative impact.
Nature, significance and consequences:
Noise, dust and emissions due to excavation, stockpiling and transport of building material and removal of rubble may cause air pollution.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Study area	Short-term	Probable	Not reversible	No	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

2. **Impact:** Contamination of soils, surface water and groundwater due to leakages from vehicles entering and exiting the site. Possibly caused by Activities 1-3.
This is not a cumulative impact
Nature, significance and consequences:
Contamination of surface and ground water can be caused by operation and servicing of light earthmoving and transport machinery, particularly oil spills and leakage.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Site specific	Temporary	Probable	Not reversible	No	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

3. **Impact:** Pollution of soil, surface water and groundwater due to ineffective management of sewage and general waste management. Possibly caused by Activities 3 and 4.
This is not a cumulative impact
Nature, significance and consequences:
Uncontrolled sewage and domestic waste disposal by workers may cause surface and ground water pollution as well as unpleasant odours and possible health risks.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Local	Medium term	Probable	Not reversible	No	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

4. **Impact:** Pollution of soil, surface water and groundwater due to ineffective manure disposal. Possibly caused by Activity 4.
This is not a cumulative impact
Nature, significance and consequences:
The chicken manure is an impact of only low adverse significance since it is a natural product of farming practice. As a resource it exerts a positive impact.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Local	Medium term	Probable	Not reversible	No	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

5. **Impact:** Pollution of soil, surface water and groundwater due to ineffective disposal of mortalities. Possibly caused by Activity 4.
This is not a cumulative impact
Nature, significance and consequences:
Disposal of chicken carcasses pose serious health, and soil and water pollution risks.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Local	Medium term	Probable	Not reversible	No	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

6. **Impact:** Soil compaction and loss of fertility. Possibly caused by Activities 1-4.
This is not a cumulative impact
Nature, significance and consequences:
Soil compaction, loss of fertility and increased erosion from unprotected slopes associated with trenches and foundations, as a result of excavation and earthmoving. This will be aggravated in the event of heavy rain.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Site specific	Temporary	Probable	Not reversible	No	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

7. **Impact:** Increased fire risk. Possibly caused by Activities 2-4.
This is not a cumulative impact

Nature, significance and consequences:
Uncontrolled cooking fires could cause veld fires. This would harm fauna and flora and pose a safety risk, particularly concerning vehicles and the adjacent land users.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Site specific	Temporary	Probable	Not reversible	No	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

8. **Impact:** Disturbance of fauna. Possibly caused by Activities 1-4.
This is not a cumulative impact
Nature, significance and consequences:
Temporary disturbance of fauna, becoming permanent as operational phase commences. This impact is unavoidable, but of low significance since there are no endangered species present.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Local	Medium term	Probable	Not reversible	No	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

9 **Impact:** Disturbance of flora. Possibly caused by Activities 1-3.
This is not a cumulative impact
Nature, significance and consequences:
Indigenous vegetation will be cleared within the proposed site boundary. This impact is unavoidable, but of low significance since there are no endangered species present.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Site	Long term	Definite	Not reversible	No	This impact is not reversible, but can be kept to a minimum by implementing mitigation measures.

10. **Impact:** Removal of indigenous vegetation. Possibly caused by Activity 1.
This is not a cumulative impact
Nature, significance and consequences:
Indigenous vegetation will be cleared within the proposed site boundary. This impact is unavoidable, but of low significance since there are no endangered species present.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Site	Long term	Definite	Not reversible	No	This impact is not reversible, but can be kept to a minimum by implementing mitigation measures.

11. **Impact:** Safety on the construction site. Possibly caused by Activities 1-3.
This is not a cumulative impact
Nature, significance and consequences:
Injuries to residents and construction workers can be cause as a result of construction activities.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Regional	Permanent	Probable	Not reversible	Yes	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

12. **Impact:** Degradation of aesthetics. Possibly caused by Activities 1-4.
This is not a cumulative impact
Nature, significance and consequences:
Visual impacts may occur during the construction and operational phase as a result of vehicle exhausts, dust, bare unprotected areas, the possibility of littering and the presence of breeder houses.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Local	Permanent	Probable	Not reversible	Yes	This impact is not reversible, but can be completely avoided by implementing mitigation measures.

13. **Impact:** Economic benefit to the local communities. Possibly caused by Activities 1-4.
This is not a cumulative impact
Nature, significance and consequences:
The construction and operation of the poultry facility will provide employment opportunities to the local communities.

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation

Extent	Duration	Probability	Reversibility	Irreplaceable loss	Degree of avoidance, management or mitigation
Regional	Long term	Probable	Not reversible	No	No avoidance or mitigation required.

8.8 Summary of specialist reports

8.8.1 Ecological assessment

The specialist Ecological Habitat Survey concluded the following:

- The site had been cultivated in the past. Secondary succession has taken place. A modified savanna is currently present at the site. Vegetation is an open savanna with large grassy patches. Indigenous trees at the site include *Vachellia karroo*, *Searsia lancea*, *Vachellia hebeclada*, *Vachellia erioloba* and *Grewia flava*. Shrub species such as *Lycium horridum*, *Hertia pallens*, *Laggera decurrens* as well as dwarf shrubs such as *Felicia muricata*, *Ziziphus zeyheriana* and *Pentzia globosa* are present at the site. Indigenous grass species at the site include *Aristida congesta*, *Melinis repens*, *Cynodon dactylon*, *Eragrostis lehmanniana*, *Tragus racemosus* and *Cenchrus ciliarus*. Indigenous forb species at the site include *Barleria macrostegia*, *Osteospermum muricatum* and *Lippia scaberrima*. The alien invasive tree species *Prosopis glandulosa* is present at the site. Alien invasive herbaceous weeds at the site include *Gomphrena celosioides*, *Schkuhria pinnata* and *Alternanthera pungens*.
- There are no wetlands or rocky ridges at the site.
- No Threatened ecosystems are present at the site.
- No Threatened or Near Threatened plant- or animal species appear to be resident at the site. No other plant species of particular conservation concern appears to be present at the site with the exception of the Protected tree species *Vachellia erioloba* (Camel Thorn Tree) of which a few individuals occur at the site. Protected Tree species are listed under the National Forests Act No. 84 of 1998. In terms of a part of section 15(1) of Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister. A permit will be needed if any damage or removal of the individual Protected trees, at the site, cannot be avoided.

- The scope for the site to be part of a corridor of particular conservation importance is small.
- There are no Threatened or Near Threatened animal- or plant species at the site. There are no threatened ecosystems at the site. The vegetation has been extensively modified in the past (hitherto cultivated area). Ecological sensitivity at the site is low.
- Following the mitigations which will be upheld for the proposed footprint of development, all the impact risks listed above are moderate or low.

9. ENVIRONMENTAL IMPACT STATEMENT

9.1 Key findings of the environmental impact assessment

It is important that all the mitigation measures identified in Section 8 and the EMPr are implemented in order to prevent environmental impacts. If the mitigation measures are implemented and monitored, the impact of the proposed activity on the environment will be minimal. See Appendix A for a layout plan containing all the proposed activities and indicating any areas that has to be avoided.

9.2 Summary of the positive and negative impacts

Specific impact or risk	Preferred activity (Activity alternative 1)	Activity alternative 2	"No-go" alternative
Air pollution on a local level.	Negative	Negative	No impact
Contamination of soils, surface water and groundwater due to leakages from vehicles entering and exiting the site.	Negative	Negative	Negative
Pollution of soil, surface water and groundwater due to ineffective management of sewage and general waste management.	Negative	Negative	No impact
Pollution of soil, surface water and groundwater due to ineffective manure disposal.	Negative	Negative	No impact
Pollution of soil, surface water and groundwater due to ineffective disposal of mortalities.	Negative	Negative	No impact
Soil compaction and loss	Negative	Negative	No impact

of fertility.			
Increased fire risk	Negative	Negative	No impact
Disturbance of fauna	Negative	Negative	No impact
Disturbance of flora	Negative	Negative	No impact
Removal of indigenous vegetation	Negative	Negative	No impact
Safety on the construction site	Negative	Negative	No impact
Degradation of aesthetics	Negative	Negative	Negative
The construction and operation of the poultry facility will provide employment opportunities to the local communities.	Positive	Positive	No impact

10. IMPACT MANAGEMENT OBJECTIVES AND OUTCOMES

10.1 Ecological environment

- Avoid any injudicious and unnecessary destruction of natural vegetation.
- Conserve plant species of conservation significance by:
    - Preventing unnecessary disturbance or destruction of their habitats.
    - Planning developments to avoid jeopardizing any specimens or large populations of red data or protected species.
- The eradication of declared weed and invader plant populations in the study area is strongly advised. Develop and enforce a management plan and follow-up strategy to prevent the spread or establishment of new populations.
- Where necessary, implement temporary water control structures to minimize erosion and create a favourable habitat for vegetation establishment during and after rehabilitation/landscaping.
- If any protected or declining species are recorded within the approved development site, obtain permission for their removal from the Permitting Office of DEDECT. Develop and implement appropriate in situ and/or ex situ conservation measures with DEDECT conservation authorities' approval. Where feasible, translocate protected or declining species to degraded or untransformed parts of the study area with suitable habitats, ensuring no ecological degradation occurs. These translocations must be evaluated by an ecologist for each species and potential area. Alternatively, rescue and donate protected or declining species to appropriate conservation and research institutions like the Walter Sisulu National Botanical Garden (Roodepoort) or the Pretoria National Botanical Garden of SANBI.
- Avoid development in habitats identified as having high ecological sensitivity whenever possible.
- Effectively control or eradicate all declared alien weeds as per AIS regulations.

10.2 Landforms and soils

- Use drip trays when refuelling and servicing construction vehicles or equipment. Place a spill “sock” permanently within the drip tray and replace it as needed. Position drip trays under stationary construction vehicles and ensure that hazardous waste (e.g., fuel, oils) is taken to the nearest approved oil refiner or fuel recycling point for recycling.
- Utilize the existing road infrastructure as indicated in the land use map whenever possible.
- Ensure that unnecessary clearance of vegetation does not occur. Keep the footprint of disturbance outside the construction area as small as possible, and rehabilitate it as soon as possible.
- Implement regular clean-up programs at and around the site to prevent litter and maintain proper housekeeping practices.

10.3 Surface water

- Implement regular clean-up programs at and around the site to prevent litter and ensure proper housekeeping practices.
- To contain oil and fuel spills, provide drip pans or PVC lining for drip pans. Ensure spill kits are readily available on site and in every vehicle.
- Use existing roads and tracks wherever possible.
- Obtain pre-approval from the ECO and landowner for any new tracks. Plan new routes to avoid steep slopes and sensitive environments, such as watercourses.
- Estimate the increase in stormwater runoff resulting from construction activities and assess the drainage system accordingly to prevent downstream impacts on water resources, including scouring, sedimentation, erosion, and undercutting.
- Use water sparingly and regularly inspect pipes to ensure no leaks occur.
- Regularly inspect water tanks to ensure no leaks occur.
- Refer to Appendix F1 for recommendations on stormwater management.

10.4 Groundwater

- Use drip trays when refuelling and servicing construction vehicles or equipment. Permanently place a spill "sock" within the drip tray and replace it as needed.
- Position drip trays under stationary construction vehicles.
- Ensure hazardous waste, such as fuel and oils, is taken to the nearest approved oil refiner or fuel recycling point for proper recycling.

10.5 Aesthetic environment:

- Ensure that unnecessary vegetation clearance does not occur. Keep the disturbance footprint outside the construction area as small as possible, and rehabilitate it promptly.
- Conduct rehabilitation and soil management according to the guidelines provided in the EMPr.
- Implement regular clean-up programs at and around the site to prevent litter and maintain proper housekeeping practices.

- Pre-arrange site access with the landowner and allow only authorized personnel on site.
- Position and manage the construction site in an ecologically sound manner to minimize negative impacts on the surrounding environment.
- Ensure personnel comply with a speed limit of 20 km per hour within the site boundaries to reduce dust generation.
- Limit disturbances to the agreed-upon footprint, prohibiting vehicle turning, parking, access, or other disturbances (e.g., vegetation clearance, soil compaction, or excavation) outside these areas.
- Repair, replace, or compensate for any damage to public or private property, including roads, stormwater systems, fences, gates, buildings, structures, pipes, lines, utilities, and movable properties, as agreed with the affected parties.
- Arrange a discussion session with surrounding access route users regarding the maintenance of the access road.
- Maintain complaints register to log and respond to complaints by landowners, occupants, and other Interested and Affected Parties. Provide the complaints register to DEDECT annually or upon request.
- Ensure that unnecessary vegetation clearance does not occur. Keep the disturbance footprint outside the construction area as small as possible, and rehabilitate it promptly.
- Remove alien invasive plants from all disturbed and subsequently rehabilitated areas.

10.6 Noise

- Ensure vehicles and construction equipment are well-maintained to prevent excessive noise.
- Limit construction activities to between 08:00 and 17:00, Monday to Friday.
- Ensure personnel comply with a speed limit of 20 km per hour within the site boundaries to reduce noise generation.
- Contractors must adhere to provincial noise regulations, fitting construction machinery with noise mufflers and maintaining it properly.

10.7 Air quality

- Ensure personnel comply with a speed limit of 20 km per hour within the site boundaries to reduce dust generation.
- Practice dust suppression by regularly spraying water.

10.8 Health, safety and security hazards

- Properly demarcate the site and have the proposed access routes approved by the ECO and landowner before commencing construction activities.
- No open fires are allowed outside designated cooking areas.
- Site supervisors must ensure that staff remain within the demarcated construction areas and access routes at all times.
- Smoking is prohibited near fuel dispensing areas and is only allowed in designated "safe" areas.

- Adequate firefighting equipment must be available onsite at all times, and at least one person present must be trained in its use.
- Labourers and contract workers must always be accompanied by a responsible supervisor.
- Exercise strict access control to prevent unauthorized persons from entering the property.
- Fit all construction vehicles with standard reverse alarms.
- Workers must wear Personal Protective Equipment (PPE) to ensure their safety during construction.
- Workers are not allowed to receive visitors while on the property.
- Prohibit workers from keeping or using alcohol, recreational drugs, weapons, snares, or other dangerous objects onsite, and from entering the construction area under the influence of alcohol or drugs.
- Limit disturbances to the minimum agreed-upon footprint. No vehicle turning, parking, access, or other disturbances (e.g., vegetation clearance, soil compaction, or excavation) are allowed outside these areas.
- Ensure the relevant contractor keeps an up-to-date list of all relevant emergency telephone numbers and contact persons, posted at appropriate locations on the site.
- Maintain complaints register to log and respond to complaints by landowners, occupants, and other Interested and Affected Parties. Provide the complaints register to DEDECT annually or upon request.

11. ASPECTS FOR INCLUSION IN AUTHORISATION

11.1 Reasoned opinion

The final site plans (Appendix C) were created taking into account all the concerns raised by the public, specialist reports and impact assessment. If this map is followed, and if proper management and mitigation is implemented and rehabilitation is done and monitored, the impact can be kept relatively low.
It is recommended that the activity should be authorised.

11.2 Conditions that must be included in the authorisation

Mitigation and management measures as stipulated in Sections 9 and 11 should be implemented.
The rehabilitation and soil management must be done in accordance with the guidelines provided in the EMPr.
Environmental audits should be conducted every two months during the Construction Phase and every six months during the Operational Phase.
Rehabilitation monitoring should be conducted according to the EMPr.
Rehabilitation should be ongoing while operation is taking place.

12. APPENDICES

Appendix A: Maps
Appendix B: Site photographs
Appendix C: Site plans
Appendix D: Public participation (to be included in FBAR)
Appendix E: EMPr
Appendix F: Additional information
Appendix G: CV of EAP

13. UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports ☒
b) the inclusion of comments and inputs from stakeholders and I&APs; ☒
c) the inclusion of inputs and recommendations from the specialist reports where relevant; ☒and
d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein. ☒

_____
Signature
Environmental Assessment Practitioner
Bucandi Environmental Solutions

Signed at Viljoenskroon on this 20th day of June 2024.