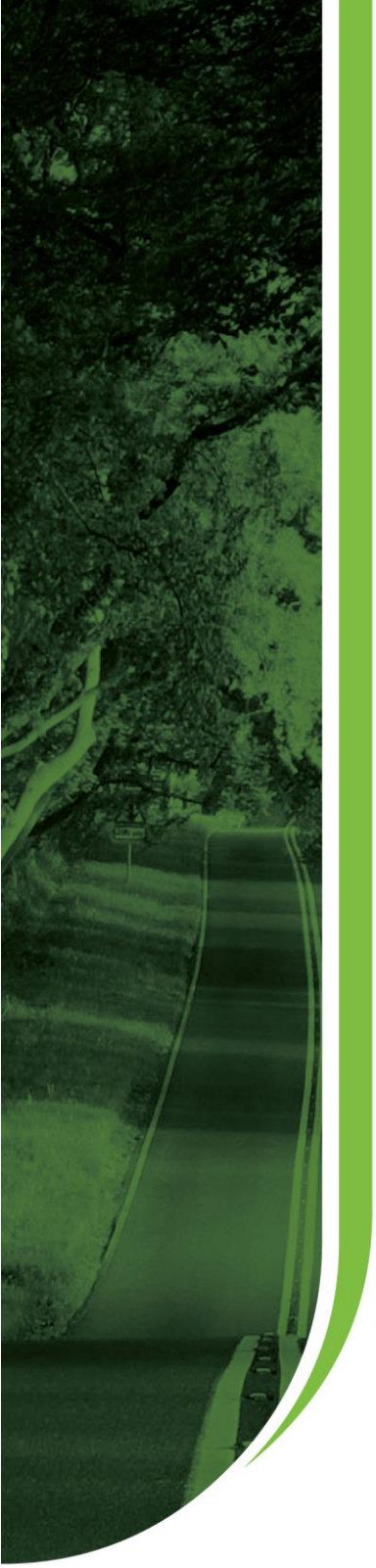

ENVIRONMENTAL AUTHORISATION, WASTE MANAGEMENT LICENSE AND WATER USE LICENSE APPLICATION FOR THE PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE

Environmental Management Programme

November 2021

Prepared for:

QUANTUM FOODS

Prepared by:

Megan Smith

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021 527 7084

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LIST OF ACRONYMS AND ABBREVIATIONS

DEA&DP	-	Department of Environmental Affairs and Development Planning
DEO	-	Designated Environmental Officer
DWS	-	Department of Water and Sanitation
ECO	-	Environmental Control Officer
EIA	-	Environmental Impact Assessment
BAR	-	Basic Environmental Impact Report
EMPr	-	Environmental Management Programme Report
EPC	-	Engineering Procurement Contractor
I&APs	-	Interested and Affected Parties
IDP	-	Integrated Development Plan
NEMA	-	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	-	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NHRA	-	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NSBA	-	National Spatial Biodiversity Assessment
NWA	-	National Water Act, 1998 (Act No. 36 of 1998)
HWC	-	Heritage Western Cape
PPP	-	Public Participation Process
SAHRA	-	South African Heritage Resources Agency
SDF	-	Spatial Development Framework

GLOSSARY OF TERMS

Alien species: A plant or animal species introduced from elsewhere: neither endemic nor indigenous.

Applicant: Any person who applies for an authorisation to undertake an activity or undertake an Environmental Process in terms of the Environmental Impact Assessment Regulations – National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as contemplated in the scheduled activities listed in Government Notice (GN) No R. 327, 325 and 324.

Biodiversity: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

Cumulative Impact: In relation to an activity, cumulative impact means the impact of an activity that in it-self may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Ecology: The study of the interrelationships between organisms and their environments.

Environment: All physical, chemical and biological factors and conditions that influence an object.

Environmental Impact Assessment: In relation to an application, to which Scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of the application.

Environmental Impact Report: In-depth assessment of impacts associated with a proposed development. This forms the second phase of an Environmental Impact Assessment and follows on from the Scoping Report.

Environmental Management Programme: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

Heritage resources: This means any place or object of cultural and archaeological significance.

Precipitation: Any form of water, such as rain, snow, sleet, or hail that falls to the earth's surface.

Red Data species: All those species included in the categories of endangered, vulnerable or rare, as defined by the International Union for the Conservation of Nature and Natural Resources.

Riparian: The area of land adjacent to a stream or river that is influenced by stream induced or related processes.

Soil compaction: Soil becoming dense by blows, vehicle passage or other type of loading. Wet soils compact easier than moist or dry soils.

1 INTRODUCTION

This Environmental Management Programme (EMPr), amongst others, describes the mitigation measures and identifies the specific role players that will be responsible for implementation of the mitigation measures, in order to ensure that impacts on the environment are minimised during the construction, operational and decommissioning phases of the proposed expansion of chicken houses from approximately 30 000 to 60 000 chickens, Bulhoek Farm, near Swartruggens, Northwest Province

This EMPr must form part of the contractual agreement between the relevant Contractor(s) and the Developer/Applicant.

1.1 NEMA Regulations Report Compliance

Appendix 4 of the National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) provides the content requirements for Environmental Management Programmes. The table below lists the relevant requirements, indicates whether the relevant information is included in this report or not, and provides cross-references as to where the relevant information can be found in this report.

Table 1: Environmental Management Programme requirements as per Appendix 4 of the NEMA EIA Regulations, 2014 (as amended).

Reg.	EMPr Content	Included (Yes, No or N/A)	Report Section Reference
(a)	A draft environmental management programme must comply with section 24N of the Act and include -		
	details of: (i) the person who prepared the environmental management programme; and	**Yes**	**Chapter 3**
	(ii) the expertise of that person to prepare an environmental management programme;	**Yes**	**Chapter 3**
(b)	A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	**Yes**	**Chapter 4**
(c)	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	**Yes**	**Chapter 2**

Reg.	EMPr Content	Included (Yes, No or N/A)	Report Section Reference
(d)	A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including – (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and, (v) where relevant, operation activities;	**Yes**	**Chapter 9**
(f)	A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to— (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and, (iv) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	**Yes**	**Chapter 7 and 9**
(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**YES**	**Chapter 9**
(h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**YES**	**Chapter 7**
(i)	An indication of the persons who will be responsible for the implementation of the impact management actions;	**YES**	**Chapter 9**
(j)	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	-	-
(k)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	**YES**	**Chapter 9**
(l)	A program for reporting on compliance, taking into account the requirements as prescribed by Regulations;	**YES**	**Chapter 7**
(m)	An environmental awareness plan describing the manner in which – (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and, (ii) risk must be dealt with in order to avoid pollution or the degradation of the environment; and,	**YES**	**Chapter 8**
(n)	Any specific information that may be required by the Competent Authority.	-	-

1.2 Report Layout

The table below summarises the content layout of this report.

Table 2: Summary of report content layout.

Chapter	Chapter Heading	Content Summary
1	Introduction	Provides a brief background to the proposed project and explains the compliance of this report with regards to Regulation 33 of the NEMA.
2	Map of the Proposed Activity	Provides a Sensitivity Map of the area surrounding the proposed project as well as a map showing the locality of the proposed project.
3	Environmental Assessment Practitioner	Provides details of the EAP who prepared this EMPr and provides information on the expertise of the EAP.
4	Project Description and Listed Activities Covered by this EMPr	Provides a brief project description and describes the relevant project phases and the NEMA Listed Activities triggered.
5	Existing Environmental and Impact Assessment Summary	Summarises the biophysical, social, economic and cultural aspects of the existing environment, and provides a summary of the impact assessment outcome.
7	Persons Responsible for Implementing this EMPr	Provides information on the persons who will be responsible for implementing this EMPr, and explains requirements with regards to on-site communication, site instruction entries, method statements, and record keeping.
6	Recommendations of the EAP	Provides recommendations of the EAP with regards to the Planning and Construction, Operation and Decommissioning phases.
8	Environmental Awareness Plan	Provides information on environmental awareness and risk training, and basic rules of conduct. Also provides an environmental risk plan.
9	Impacts and Mitigation Measures	Provides EMPrs for the relevant project phases.
10	Emergency Response Plan	Provides information on the emergency response plan.
11	Incident Register	Stipulates the content requirements for incident registers.
12	Rehabilitation Measures and Closure Plan	Provides rehabilitation measures and closure plan objectives.

2 MAP OF THE PROPOSED ACTIVITY

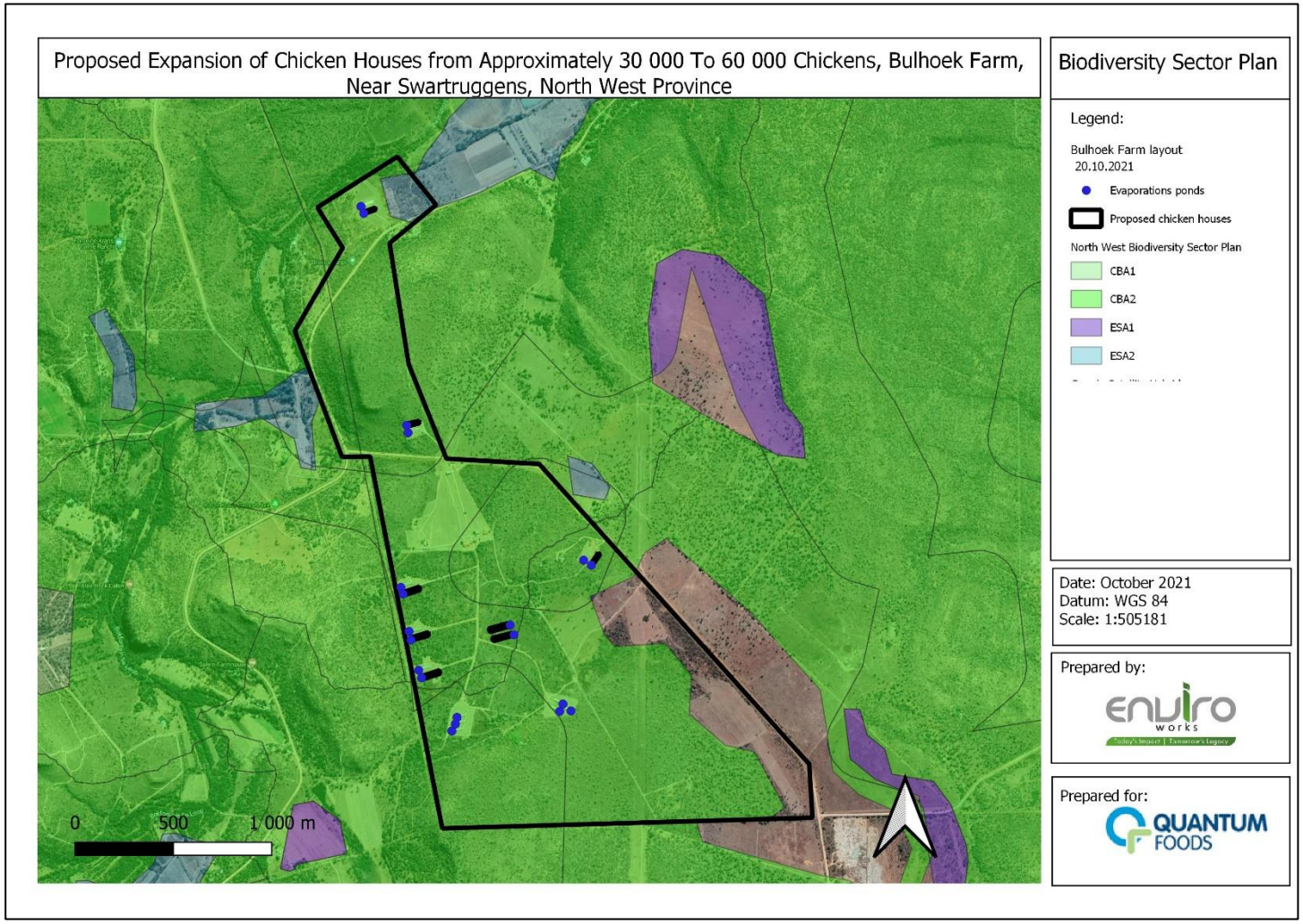

Figure 1: Sensitivity Map of the Proposed Area

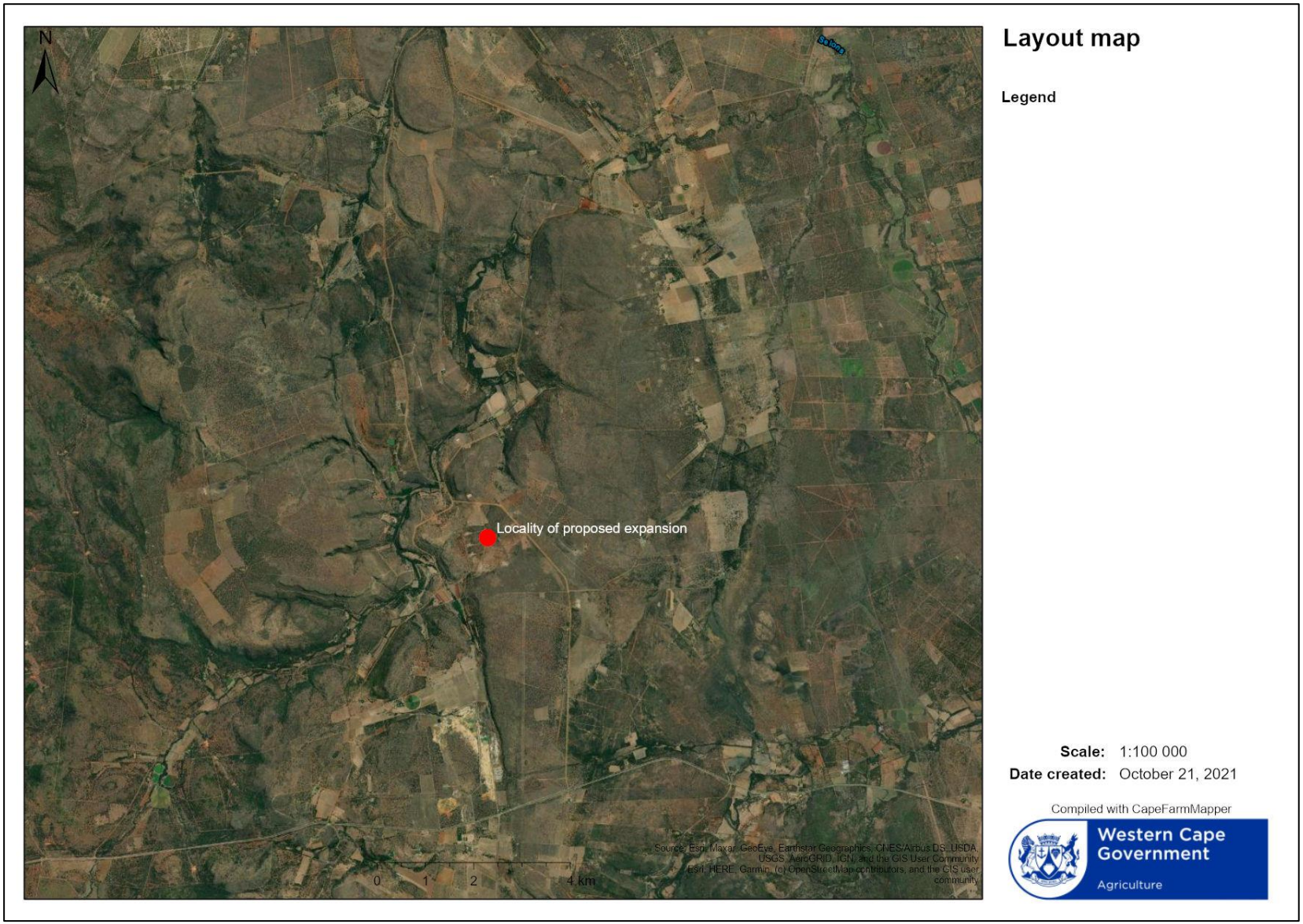

Figure 2: Layout Map of the Proposed Area

Figure 3: Site Layout Plan

3 ENVIRONMENTAL ASSESSMENT PRACTITIONER

This Environmental Management Programme Report was prepared by Megan Smith from Enviroworks, the Environmental Assessment Practitioner (EAP) who is undertaking this EIA process. The sections below provide the details of the EAP and explain the EAP's expertise to prepare this EMPr.

3.1 Details of the EAP

Business name of EAP:	Enviroworks
Physical address:	Uni 81, Millennium Business Park. 19 Edison Way, Century City
Postal code:	7441
Telephone:	076 965 8002
E-mail:	Megan.smith@enviroworks.co.za

3.2 Expertise of the EAP

Name of EAP	**Education qualifications**	**Professional affiliations**	**Experience at environmental assessments (yrs)**
Megan Smith	MSc Biological Sciences (UCT)	EAPASA:2020-2855	2 years
Name of EAP (Reviewer)	**Education qualifications**	**Professional affiliations**	**Experience at environmental assessments (yrs)**
Elana Moster	MSc. Conservation Ecology (SU)	EAPASA: 2019-1311	5 years

3.3 Curriculum Vitae of the EAP

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Cell 076 965 8002 I Tel 021 527 7084 I Fax 086 601 7507

Megan.Smith@enviroworks.co.za I www.enviroworks.co.za

Megan Smith

RELEVANT QUALIFICATIONS AND TRAINING

- MSc Biological Sciences (UCT): Specialising in Plant Ecology
- BSc Hons Botany (NMU)
- BSc Environmental Sciences (NMU)
- Scientific writing training led by Dr Pippin Anderson (August 2019)
- Fynbos plant identification training (July 2019)
- CDM calibration training by Renew Technologies (August 2020)
- ISO 14001:2015 Lead auditor training by SACAS (March 2021)
- Hydropedology and wetland delineation course led by WETrust and digital Soils Africa (September 2021)

WORK EXPERIENCE

- March 2015 – September 2016: Research assistant determining sustainable cultivation practices of Honeybush (*Cyclopia* spp.) at NMU
- March 2019 – April 2020: Restoration Ecology and Conservation Planning intern at SANBI
- April 2020 – current: Environmental consultant and legal assistant at Enviroworks

Published popular Science article:

- Smith, M., Rebelo, A.G. 2020. The Amazing Nature Race. Veld and Flora 106: 16-21.
- Smith, M., Rebelo, A., Rebelo, A.G. 2020. Passive restoration of Critically Endangered Cape Flats Sand Fynbos at lower Tokai Park section of Table Mountain National Park, Cape Town. ReStory
- Smith, M., Rebelo, A., Rebelo, A.G. 2020. Saving Critically Endangered Peninsula Granite Fynbos from extinction at Tokai Park, Cape Town. ReStory.
- Smith, M., Rebelo, A.G. 2020. iNaturalist: your portal into nature and becoming a citizen scientist. African Wildlife and Environment 75.

BASIC ASSESSMENT

- The proposed development of a thirty-five metre (35m) telecommunication base station and associated infrastructure on Portion 42 of Farm 428, Plettenberg Bay, Western Cape Province, SBA Towers South Africa.
- The proposed development of a twenty-five metre (25m) telecommunication base station and associated infrastructure on Lorraine Farm, the Remainder of Farm 790, Phillipi Western Cape Province, SBA Towers South Africa.

- The proposed development of a desalination or reverse osmosis plant, Tormin Mine, Western Cape Province (in progress), Mineral Sands Resources
- Proposed expansion of chicken houses from approximately 30 000 to 60 000 chickens, Bulhoek Farm, near Swartruggens, North West Province, Quantum Foods (in progress).
- Proposed development of a protea hotel within the Kruger National Park, Phalaborwa, Limpopo Province, South African National Parks (SANParks) (In progress).
- Proposed development of the Lendlovu Lodge, Addo Elephant Park, Eastern Cape Province, SANParks (in progress).
- Basic assessment for the proposed construction of The Klein Mooimaak Rest Camp and upgrade of the Langebaan Entrance Gate, West Coast National Park, Western Cape, SANParks (in progress)

ENVIRONMENTAL MANAGEMENT PLANS

- The proposed development of a thirty five metre (35m) telecommunication base station and associated infrastructure on Portion 42 of Farm 428, Plettenberg Bay, Western Cape Province, SBA Towers South Africa.
- The proposed development of a twenty five metre (25m) telecommunication base station and associated infrastructure on Lorraine Farm, the Remainder of Farm 790, Phillipi Western Cape Province, SBA Towers South Africa.
- The proposed development of a desalination or reverse osmosis plant, Tormin Mine, Western Cape Province (in progress), Mineral Sands Resources
- Proposed expansion of chicken houses from approximately 30 000 to 60 000 chickens, Bulhoek Farm, near Swartruggens, North West Province, Quantum Foods (in progress).
- Proposed development of a protea hotel within the Kruger National Park, Phalaborwa, Limpopo Province, South African National Parks (SANParks) (In progress).
- Proposed development of the Lendlovu Lodge, Addo Elephant Park, Eastern Cape Province, SANParks (in progress).
- Registration of the bulk diesel storage and update to the EMPr for the proposed expansion of the Samrand Data Centre, African Data Centres (in progress).

BOTANICAL AND FAUNAL IMPACT STUDIES

- Botanical Impact Assessment: Rezoning and the development of fifteen (15) resort units on Portion 12 of the Farm Riet Valley no. 452, Hessequa Local Municipality, Western Cape Province (Faunal Compliance Statement and Botanical Impact Assessment), Hessequa Municipality.
- Botanical survey for the proposed development of a six-point three kilometre (6.3km) long pipeline along Macassar Road, Macassar, Cape Town, Western Cape Province, BVi Consulting Engineers Western Cape.
- Botanical and Faunal Compliance Statement; Proposed expansion of chicken houses from approximately 30 000 to 60 000 chickens, Bulhoek Farm, near Swartruggens, North West Province, Quantum Foods (in progress)
- Botanical and Terrestrial Biodiversity Impact Assessment: Proposed development of the Lendlovu Lodge, Addo Elephant Park, Eastern Cape Province, SANParks (in progress).

- Botanical Site Sensitivity Report and Species Identification: Almenkerk Mast (in progress)
- Protected tree and animal species survey, and compilation of an alien invasion management plan for Ramatlabama Poultry Farm, Mahikeng, Northwest Province, Supreme Poultry (in progress).

REHABILIATION PLANS

- Protocols for restoring Critically Endangered Cape Flats Sand Fynbos within lower Tokai Park, Cape Town, South African National Biodiversity Institute)
- Proposed development of a six-point three kilometre (6.3km) long pipeline along Macassar road, Macassar, Cape Town, Western Cape Province, BVi Consulting Engineers Western Cape.
- Rehabilitation implementation plan and consultation services for Tormin Mine, Western Cape Province, Mineral Sands Resources (in progress)
- Rehabilitation Method Statement for 132 KW and 33 KW transmission lines, transmission substation, cabling line trenches, and access roads on Roggeveld Wind Farm, Western Cape, Raubex Infra.
- Rehabilitation progress report :132 kv and 33 kv tranmission lines, transmission substation, cabling line trenches, and access roads on Roggeveld Wind Farm, Western Cape, Raubex Infra.

ENVIRONMENTAL CONTROL OFFICER (ECO) AND AUDITING

- Environmental Control Officer:The proposed development of a backup energy centre including diesel storage and generators, on Erf 142504, Diep River, Cape Town, Western Cape Province, African Data Centres.
- Environmental Control Officer:The proposed construction of new and rehabilitation of existing non-motorised transport facilities in the Cape Town CBD, Western Cape Province, BVi Consulting Engineers Western Cape.
- Environmental Compliance Audit for Franki Africa Stock Yard, Durban, KwaZulu Natal Province, Franki Africa.
- The proposed development of a twenty-five metre (25m) telecommunication base station and associated infrastructure on Lorraine Farm, the Remainder of Farm 790, Phillipi Western Cape Province, SBA Towers South Africa
- Environmental Control Officer: The proposed maintenance of the Blue Stone Quarry Wall, Robben Island, Robben Island Musuem.

MAINTENANCE MANAGEMENT PLANS

- The proposed maintenance of the Blue Stone Quarry Wall, Robben Island, Robben Island Musuem.

ENVIRONMENTAL SCREENING

- Proposed upgrading of the Durbanville Public Transport Interchange, Western Cape, BVi Consulting Engineers Western Cape.
- Proposed the upgrade on national road R40 section from Hazyview (km 0.0) to Maviljan (km 32.1), BVi Consulting Engineers Western Cape.

ALIEN INVASIVE SPECIES MANAGEMENT PLANS

- Invasive species monitoring, control and eradication plan, Garden Route District Municipality, Western Cape Province, Garden Route District Municipality.
- Rehabilitation implementation plan and consultation services for Tormin Mine, Western Cape Province, Mineral Sands Resources (in progress)
- Protected tree and animal species survey, and compilation of an alien invasion management plan for Ramatlabama Poultry Farm, Mahikeng, Northwest Province, Supreme Poultry (in progress).

CLEAN DEVELOPMENT MECHANISM

- Calibration and advisory services for the CDM Methane Burning Plant at the Coastal Park and Bellville South Landfill Sites, Promethium Carbon (in progress)

4 PROJECT DESCRIPTION AND LISTED ACTIVITIES COVERED BY THIS EMPR

4.1 Brief Project Description

Quantum Foods (The Applicant) appointed Enviroworks, an Independent Environmental Assessment Practitioner (EAP) to undertake the required

- Basic Assessment Process for the intended Waste Management License and Environment Authorisation, and
- Water Use License Application

for the proposed construction of eight (8) chicken layer houses and twenty (20) evaporation ponds, and the usage of three (3) boreholes for a Poultry Farm on Portion 0 of Erf no. 389 and Portion 40 of Erf no. 393, North West Province.

The project applicant, Quantum Foods, currently operates twelve (12) chicken layer houses at their existing poultry farm, located between the town of Swartruggens and the city of Rustenburg, North West Province.

The applicant now proposes the expansion of the poultry farm from approximately 30 000 to 60 000 chickens (rounded up), by developing eight (8) additional new layer houses and twenty (20) evaporation ponds. Six (6) of these proposed new layer houses will be constructed directly adjacent to the existing houses, while merely two (2) will be located at a separate location, at the existing facility. The layer houses are deemed to mainly operate as isolated units from their surrounding undeveloped environments.

In accordance with the information received from the farm manager during the site assessment, the layer houses get washed out twice annually. This process constitutes the following main two steps:

- Manure and other undesired waste products are manually, thoroughly cleaned out of the layer houses and then adequately and safely removed from site, by a contracted third party. The manure is used by an external farmer for agricultural fertiliser.
- The floors of the layer houses are then additionally sprayed clean with chemically treated water, with the use of pressure hoses.

This is done in order to ensure complete removal and neutralisation of all undesired waste products from the layer houses.

All wash water emanating from these twice-annual layer house wash-out processes (approximated to use 13 000 litres of water per house per annum), are currently disposed of into the surrounding undeveloped

environments. Quantum Foods now proposes the development of twenty (20) lined and impermeable evaporation ponds (each being 25m^2 and 1.2 m deep) to treat the wash water. The purpose of the evaporation ponds will be to ensure adequate containment and subsequent evaporation of all wash water. This will prevent wash water contact with- and potential contamination of the surrounding undeveloped environments.

The chemicals associated with cleaning the chicken houses have been included in Appendix G. These chemicals are Peroxysan, Hyposan, Foamcleaner, Viroclear, Cleanclear and Triazolol. These chemicals are not hazardous, most of them do not present toxic characteristics, are not carcinogenic, has little to non-eco-toxicological effects, hazardous polymerization will not occur, and some are bio-degradable. Therefore, the waste associated from washing the chicken houses can be classified as non-hazardous. This based on the Material Safety Data Sheets for the chemicals.

It is predicted that only dirt (i.e., soil and windblown sand) and dried, non-infectious chicken manure are currently by products of the wash (besides the cleaning agent).

In terms of water usage, the water sources currently used on site, constitute three (3) boreholes that supply approximately 228 742.31 m^3/month. The three (3) water reservoirs currently present on site, have a capacity of approximately 100 000 litres.

In terms of sewage, the facility has three (3) septic tanks on site that will be serviced as needed (twice a year) by a honeysucker and disposed of accordingly. No new septic tanks will be constructed.

The chicken farm currently operates on the Eskom grid.

4.2 Project Phases

Three phases:

- Construction Phase (includes planning, design, pre-construction and construction activities);
- Operational Phase; and,
- Decommissioning Phase.

4.3 NEMA Listed Activities Triggered

The NEMA EIA Listed Activities (as per the NEMA EIA Regulations Listing Notices 1, 2 and 3 of 2017) that will be triggered by the proposed project are listed in the table below.

Table 3: Listed Activities applicable to this application.

Potential listed activity as described in the National Environmental Management: Waste Act (Act No. 59 of 2008) (NEM:WA), GN 921 of 2013 as amended by GN 633 on 24 July 2015	**Description of project activity**
Category A: Activity 1 *-Storage of waste:* *"The storage of general waste in lagoons."*	Twenty (20) evaporation ponds will be constructed on site for the treatment of wastewater from washing the chicken houses. The waste associated with the washing of the chicken houses will be manure (general waste).
Category A: Activity 12 *-Construction, expansion or decommissioning of facilities and associated structures and infrastructure:* *"The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity)."*	Twenty (20) evaporation ponds will be constructed on site for the treatment of wastewater from washing the chicken houses. The waste associated with the washing of the chicken houses will be manure (general waste).
Potential listed activity as described in the Environmental Assessment Regulations (2014, as amended), GN 706 of 2018 as amended by GN 517 on 11 June 2021- Listing Notice 1	**Description of project activity**
Activity 40. The expansion and related operation 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*	Expansion of broiler houses that will accommodate more than 5000 chickens per facility outside an urban area
Potential listed activity as described in the Environmental Assessment Regulations (2014, as amended), GN 706 of 2018 as amended by GN 517 on 11 June 2021 – Listing Notice 3	**Description of project activity**

Activity 12: The clearance of an area of 300 square *metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a* *maintenance management plan.* *North West* *iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;* *v. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act* *and as adopted by the competent authority;*	Clearance of more 300m^2 of indigenous vegetation within a CBA as identified in the North West Biodiversity Spatial Plan.
Potential listed water uses that require a water use license as described in the National Water Act (No. 36 of 1998), GN 19182 as amended by GN 20706 on 6 December 1999 and GN 450 on 2 September 2014	**Description of project activity**
Section 21(a): *Taking water from a water resource*	Three boreholes will be used on site for: - The washing of chicken houses - Drinking water and basic sanitation
Section Section 21(g): *Disposing of waste in a manner which may detrimentally impact on a water resource.*	• Twenty (20) evaporation ponds will be constructed on site for the treatment of wastewater from washing the chicken houses. • The use of three (3) septic tanks. No new septic tanks will be constructed.as part of the expansion.

5 EXISTING ENVIRONMENTAL AND IMPACT ASSESSMENT SUMMARY

The sections below summarise the existing environment, and the outcome of the impact assessment that was undertaken for the proposed project.

5.1 The Receiving Environment

The following looks at the area surrounding the proposed development within a three kilometre (3km) radius. Farmland and small businesses lie to the west, north and south. The towns Rustenburg and Swartruggens are approximately 30- 40 km away from Bulhoek Farm.

Currently Bulhoek Farm is used for poultry farming and one office/security house unit lies in the northern corner of the property. The proposed development footprints were in a degraded state or already transformed.

5.2 Public Participation

To support public interest and inform the EIA process, a public consultation process has taken place throughout the lifetime assessment. A diverse mix of authorities, stakeholders and interested and affected parties were consulted during this time, representing the environment, social, economic and political realms of local and regional and national bodies.

Comments were responded to during various stages of the public participation process in the Basic Assessment Report and have been addressed in project reports as relevant.

5.3 Specialist Investigations

FAUNAL AND FLORAL SPECIALIST (MEGAN SMITH, 2021)

Summary and conclusion:

It is anticipated that the proposed development will have negligible impact on the faunal, terrestrial biodiversity and botanical features identified by the screening tool because the development footprint is extensively disturbed and does not represent likely habitat for any plant or animal species that may be threatened with extinction, as listed by the Screening Tool.

Specific mitigation measures

- No open fires are allowed on site during the construction.
- Smoking must be restricted to designated smoking areas.
- No dumping of sewage, general- or hazardous waste into a terrestrial or aquatic ecosystem.
- All agricultural activities must remain within the designated footprint.
- The proposed development must remain outside of the delineated watercourses buffer as per the Aquatic Biodiversity Assessment.
- Development and access roads should be restricted to already disturbed areas as far as practically possible.

- It is recommended that an alien invasive species management plan be compiled for the operational phase of the development to ensure that all alien invasive plant species are removed, and their spread is controlled.
- Vehicles used during the construction, operational, and decommissioning phase must be restricted to designated roads.
- Should any threatened species be observed on the development footprint, the species must be relocated in consultation with a faunal specialist.
- All emergency numbers for human-wildlife conflict events must be located at the farm offices.
- At least one construction personnel must a trained snake handler (for example, the Designated Environmental Officer).
- All personnel, during all phases of the construction and operation works, must be inducted to ensure that they are aware of the environmental sensitivities on the site.
- Areas disturbed outside of the footprint must be rehabilitated effectively.
- All management outcomes included in the Avifaunal Compliance Statement must be adhered to.
- Topsoil must be retained and stockpiled for the purposes of rehabilitation.

AQUATIC BIODIVERSITY SPECIALIST (RIKUS LAMPRECHT, 2021)

Summary and conclusion:

Transformation of an aquatic Critical Biodiversity Area (CBA) and Ecological Support Area (ESA); Disturbance of-/damage to aquatic and semi-aquatic faunal habitats, associated with the Dwarsspruit as well as Contamination/eutrophication of groundwater, were identified and addressed as significant potential long-term aquatic ecological impacts, associated with the proposed development.

These potential long-term aquatic ecological impacts identified for the proposed development, could therefore potentially add moderate to moderately-high cumulative impact to existing negative impacts caused by the sporadic presence of existing agricultural developments, along the localised length of the Dwarsspruit.

It is however the opinion of the specialist, by application of the NEMA Mitigation Hierarchy, that all the identified potential aquatic ecological impacts associated with the proposed development, can be suitably reduced and mitigated to within acceptable residual levels, by implementation of the recommended mitigation measures. It is therefore not anticipated that the proposed development will necessarily add any

significant residual aquatic ecological impacts to the surrounding environment or Dwarsspruit, if all the recommended mitigation measures as per this aquatic ecological report are adequately implemented and managed, for both the construction and operational phases of the proposed development.

It is the opinion of the specialist that the proposed development of the eight (8) additional new layer houses and twenty (20) evaporation ponds, should be considered by the competent authority for Environmental Authorisation and approval. All recommended mitigation measures as per this aquatic ecological report must however be adequately implemented and managed for both the construction and operational phases of the proposed development. All necessary authorisations, permits and licenses must also be obtained prior to the commencement of any construction.

Specific mitigation measures:

Construction phase:

- It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone.
- It is further recommended that the continued mechanical/manual vegetation clearance and maintenance of the area situated directly to the south of the Dwarsspruit and associated with the relevant Critical Biodiversity Area two (CBA 2), should be permanently ceased, with immediate effect. The area should be adequately re-vegetated and rehabilitated, as soon as practicably possible. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.
- The proposed development construction footprint must be kept as small as practicably possible to reduce the surface impact on surrounding vegetation and no unnecessary/unauthorised footprint expansion into the broader undeveloped landscape surrounding the proposed development footprint, may take place.
- No site construction basecamps may be established within the broader undeveloped landscape surrounding the proposed development footprint.
- Adequately cordon off the proposed development construction footprint area and ensure that no construction activities, -machinery or -equipment operate or impact within the broader undeveloped landscape outside the cordoned off area.
- Adequate operational procedures for construction machinery and equipment must be developed in order to strictly govern and restrict movement of machinery only within the proposed development

construction footprint area and to ensure environmentally responsible construction practices and activities.

- Disturbed areas within and immediately surrounding the proposed development footprint area, must be adequately rehabilitated as soon as practicably possible after construction.
- Implement an adequate Alien Invasive Species Management Plan during the construction and operational phases. Such a Management Plan must be compiled by a suitably qualified and experienced ecologist.
- Implement an adequate Stormwater and Erosion Management Plan during the construction phase of the proposed development, to sufficiently manage storm water runoff and clean/dirty water separation on site. This must be done in order to prevent any significant soil erosion in and around the assessment area and subsequently prevent any significant contamination of the Dwarsspruit.
- It is further recommended that small temporary stormwater cut-off berms/trenches be constructed directly adjacent around the upstream sides of the proposed layer house site no 8 and evaporation ponds site no 8 construction footprints. These cut-off berms/trenches must assist with clean/dirty water separation during the construction phase, by diverting and channelling clean surface water runoff from the south, around the construction footprints, towards the Dwarsspruit.
- Hydrocarbon and other chemical storage areas must be adequately bunded in order to be able to contain a minimum of 150 % of the capacity of storage tanks/units.
- Adequate hydrocarbon and other chemical storage, handling, usage and spillage clean-up procedures must be developed and all relevant construction personnel must be sufficiently trained on- and apply these procedures during the entire construction phase.
- Spill kits must be readily available on the construction site. All employees must be adequately trained on the correct procedure and use of the spill kits.

<u>Operational Phase</u>

- A Water Use License Application (WULA) must be submitted to the Department of Water and Sanitation, in accordance with the National Water Act (Act 36 of 1998).
- Only the allotted water quantities as per the approved Water Use License are to be extracted.
- Flow meters must be installed in order to enable monitoring and management of water consumption.
- Water consumption figures must be submitted to the Department of Water and Sanitation (DWS) on a regular basis in order to ensure compliance with the allotted water quantities, as per the approved Water Use License.
- Water saving initiatives must be implemented for the operations of the poultry farm.

- Environmentally responsible water use practices and activities must be adopted for the operations of the poultry farm.
- Provide training interventions for the operational staff of the poultry farm, on correct environmentally responsible water use practices and activities for the operations of the poultry farm.

AVIFAUNAL SPECIALIST (MEGAN DIAMOND, 2021)

Impact statement

The overall impact of the proposed Bulhoek Farm Chicken House Expansion Project, on the avifaunal community, particularly Secretarybird, is seen as acceptably LOW and therefore, impacts can be mitigated to acceptable levels allowing for the development to be authorised.

Specific mitigation measures

- Avoid removal of sensitive vegetation types. The recommendations of the botanical study must be strictly implemented, especially as far as limitation of the construction footprint and rehabilitation of disturbed areas is concerned.
- Construction activity should be restricted to the immediate footprint of the infrastructure in areas of HIGH sensitivity.
- All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment.
- All temporary disturbed areas should be rehabilitated according to the site's rehabilitation plan, following construction

GEOHYDROLOGICAL SPECIALIST (ROLENE LUBBE, 2021)

Summary and conclusion:

In conclusion, Quantum Foods, Bulhoek Farm, near Swartruggens, North West Province, poses a low risk in terms of groundwater contamination potential and a low risk in surface water contamination potential, but any risks can be decreased by taking the below-mentioned recommendations and mitigation measures mentioned in the report into account.

Specific mitigation measures

The following recommendations should be adhered to in terms of mitigation measures:

- Monitoring boreholes should be developed in the area to ensure that groundwater quality can be monitored with regards to the septic tanks and evaporation ponds on site, two (2) boreholes are advised, one (1) upstream from the facility and another downstream of the facility.
- Groundwater from the borehole BULBH2 should be chemically treated prior to human consumption and utilisation;
- Groundwater from BULBH3 should be treated for the total hardness of the water prior to utilisation to protect groundwater pumping equipment.
- Surface water quality should be monitored to ensure that surface water contamination from the facility does not take place;
- A groundwater monitoring plan should be drafted which include an early warning system to highlight contamination, should it occur and should also include a mitigation plan if/when groundwater contamination occurs;
- The water monitoring plan should be revised on a regular basis to incorporate the changes in the water flow regime;
- Laboratory analysis techniques will comply with SABS guidelines. Laboratories must be accredited;
- Data must be stored electronically. It is suggested that a well-known database such as WISH, Aqua base or Access be used. A backup of the data base must be stored in a safe place. Backups should be made every time the database is updated;
- On the completion of every sampling run a monitoring report must be completed. Included in the report must be time series trends, Piper and Durov diagrams. These will be used to determine if there are any changes in the system. These changes must be flagged and explained in the report;
- The facility should be kept clean and tidy at all times;
- Any waste generated should be disposed of accordingly in registered waste (landfill) sites and not dumped on site or the surrounding area;
- All surfaces that are associated with waste and manure should have impermeable surfaces;
- Stormwater and runoff should be diverted and managed to not come in contact with any waste generated on site;
- Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. This is to prevent any litter, rubble, or possible pollution to enter the watercourses downstream of the site and the surrounding environment in general;
- Water drainage should be properly planned and addressed to drain water from the site and prevent any accumulation on site;
- Provision of adequate on-site sewerage management;

- Appoint a qualified Geohydrologist to monitor groundwater, this should be implemented throughout the lifespan on the activity. The quality analysis should be done bi-annually during the operational phase of the evaporation ponds;
- Sewerage and sanitation facilities should be regularly maintained and checked;
- The principle of reduce, re-use and recycle should be followed;
- Avoid the use of concrete lined channels for storm water management as this can increase the speed of water. This in turn increases erosion potential that can cause erosion on site and in channels and increase siltation downstream. If concrete-lined channels are used; they should end in silt traps;
- Regular inspections will be undertaken of any access roads and stormwater management drains for signs of erosion and sedimentation;
- Regularly inspect all vehicles for leaks. Re-fuelling of vehicles must take place on a sealed surface area surrounded by berms to prevent ingress of hydrocarbons into topsoil;
- If any spills occur, they should be immediately cleaned up;
- If water is sprayed on the surfaces for any reason during the construction completion process, utmost care must be taken to ensure the runoff water does not pollute the watercourses;
- A stormwater cut-off drain should be constructed between the facility and the watercourses to ensure that storm water flowing through the facility cannot flow into the watercourses. The water from the cut-off drain must be collected in a sedimentation pond before entering the aquatic system;
- No dirty water runoff from the construction and decommissioning site must be permitted to reach the watercourse;
- Spill kits must be stored on site: In case of accidental spills of oil, petroleum products etc., good oil absorbent materials must be on hand to allow for the quick remediation of the spill. The kits should also be well marked and all personnel should be educated to deal with the spill. Vehicles must be kept in good working order and leaks must be fixed immediately on an oil absorbent mat. The use of a product such as Sunsorb is advised;
- Proper toilet facilities must be available during construction and decommissioning. The impact of human waste on the system is immense. Chemical toilets must be provided and should always be well serviced and spaced as per occupational health and safety laws, and placed outside the 1:100 year flood lines;
- The proposed septic tanks and evaporation ponds should be lined with a synthetic liner or any other liner that has been approved by the DWS to ensure that no potential leachate pollutes the groundwater;
- Due to the presence of possible intrusive dolerite/ magnetic features, the septic tanks should be serviced at least weekly;

- A leak monitoring device is advised for the septic tanks to ensure that any leakages are detected early enough to mitigate.
- Should it be decided to irrigate fields with the wash water from the chicken houses, the water will need to be tested to ensure that it meets the minimum requirements. If the wash water quality does not comply with the minimum requirements, water should be treated prior to irrigation.
- Water tanks should be regularly checked for structural integrity on site, if present; and,
- Emergency response plan should be in place for failure of water tank structures, if present.

AQUIFER YEILD TEST (CHRISTIAAN VERMAAK, 2021)

Safe yield estimations:

BULBH01

The safe yield was estimated on the basis of the constant yield test. According to the FC method calculations the sustainable yield for BULBH01 is 0.63 l/s (2 268 l/hr) on a 24-hr pump cycle. A total of 54 432 litres per day is available at the above-mentioned rate and duty cycle. The recommended depth of the pump intake is 80 meters below ground level and the dynamic water level is 62 mbgl.

BULBH02

The safe yield was estimated on the basis of the constant yield test. According to the FC method calculations the sustainable yield for BULBH02 is 0.24 l/s (864 l/hr) on an 24-hr pump cycle. A total of 20 736 litres per day is available at the above-mentioned rate and duty cycle. The recommended depth of the pump intake is 50 meters below ground level and the dynamic water level of 37 mbgl should not be exceeded.

BULBH03

The safe yield was estimated on the basis of the constant yield test. According to the FC method calculations the sustainable yield for BULBH03 is 0.85 l/s (3060 l/hr) on an 24hr pump cycle. A total of 73 440 litres per day is available at the above-mentioned rate and duty cycle. The recommended depth of the pump intake is 50 meters below ground level and the dynamic water level of 37 mbgl should not be exceeded.

HERITAGE SPECIALIST (JENNA LAVIN, 2021)

Recommendation/conclusion

As it is not likely that the proposed development will impact significant heritage resources, it is recommended that no further heritage studies are required for this proposed development. It is recommended that the attached Chance Fossil Finds Procedure is implemented during excavation activities.

AGRO- ECOSYSTEM SPECIALST (DARREN BOUWER, 2021)

Summary and conclusion:

This report describes the Agro-Ecosystem Assessment study of Farm Bulhoek. North West contributes about 9% of South Africa's poultry production (Agriseta, 2020). The Bulhoek farm will contribute to higher employment rates, with approximately 15 job opportunities being made. In terms of land potential, there are moderate potential soils, but due to low rainfall and high evaporation rates, these soils are termed marginal agricultural soils where only specific crops would be able to grow. Furthermore, no new chicken houses are proposed on existing agricultural lands.

Therefore, the small loss in agricultural output is outweighed by the poultry production. In terms of agricultural sensitivity, the proposed development should thus be allowed to proceed at the identified site

5.4 Environmental Impact Ratings

PLANNING, DESIGN AND CONSTRUCTION PHASE

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Nature of impact: Negative impact of haphazard placement of infrastructure on the environment.	**Activity:** The establishment of a main site office and storage site during the construction period will ensure that the poor placement of materials and infrastructure will be avoided. This could also result in the damage or pollution to surrounding areas caused by construction activities.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	2	1	2	1	-
Extent:	1	1	1	1	-
Irreplaceable:	3	3	3	3	-
Reversibility:	3	3	3	3	-
Probability:	3	2	3	2	-
Total SP:	39	20	39	20	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Topsoil removal and soil erosion.	**Activity:** The clearing of topsoil and excavation for the establishment of building foundations may result in the destruction of fertile topsoil and loss of vegetation cover associated with the development.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	2	2	2	2	-
Extent:	1	1	1	1	-
Irreplaceable:	2	2	2	2	-
Reversibility:	2	2	2	2	-
Probability:	3	2	3	2	-
Total SP:	33	18	33	18	-
Significance rating:	L	L	L	L	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Cumulative impact:	L	L	L	L	-
Nature of impact: Surface and groundwater contamination due to construction activities such as the use of hazardous materials on site e.g., fuel and oil.	**Activity:** Spills could possibly occur on site and lead to the contamination of soil and groundwater.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	6	4	6	4	-
Duration:	2	2	2	2	-
Extent:	1	1	1	1	-
Irreplaceable:	3	1	3	1	-
Reversibility:	3	2	3	2	-
Probability:	4	3	4	3	-
Total SP:	60	30	60	30	-
Significance rating:	M	L	M	L	-
Cumulative impact:	L	L	L	L	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Nature of impact: Handling of general waste materials on the development site.	**Activity:** The presence of personnel and construction operations on site will increase the likelihood of littering and the dumping of solid waste.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	6	4	6	4	-
Duration:	2	2	2	2	-
Extent:	1	1	1	1	-
Irreplaceable:	2	0	2	0	-
Reversibility:	1	0	1	0	-
Probability:	3	2	3	2	-
Total SP:	36	14	36	14	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact:	**Activity:**				No construction phase impacts are associated with the

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Increased risk of veld fires.	Due to the presence of construction personnel in natural areas, fires can occur if not managed to the correct standard. Fire may occur due to the presence and use of hazardous and flammable materials on site.				no-go alternative thus no assessment has been undertaken.
Magnitude:	6	4	6	4	-
Duration:	2	2	2	2	-
Extent:	2	2	2	2	-
Irreplaceable:	3	2	3	2	-
Reversibility:	3	2	3	2	-
Probability:	3	2	3	2	-
Total SP:	48	24	48	24	-
Significance rating:	M	L	M	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Traffic impacts associated with the movement of construction vehicles on site.	**Activity:** The movement of vehicles on site may result in the destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site.				No construction phase impacts are associated with the no-go alternative thus no

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
					assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	2	2	2	2	-
Extent:	1	1	1	1	-
Irreplaceable:	2	1	2	1	-
Reversibility:	2	1	2	1	-
Probability:	3	2	3	2	-
Total SP:	33	14	33	14	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Direct impact on vegetation and fauna during construction and loss of species.	**Activity:** The construction of several permanent structures on site will result in the loss of vegetation and other ecological processes due to foundation excavation.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Magnitude:	4	2	4	2	-
Duration:	2	2	2	2	-
Extent:	1	1	1	1	-
Irreplaceable:	1	1	1	1	-
Reversibility:	1	1	1	1	-
Probability:	4	2	4	2	-
Total SP:	36	14	36	14	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Direct impact on avifauna during construction and loss of species.	**Activity:** Permanent displacement and mortality of local populations of Red List species caused by habitat loss, disturbance, entrapment and drowning.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	6	2	6	2	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Duration:	4	4	4	4	-
Extent:	2	2	2	2	-
Irreplaceable:	1	1	1	1	-
Reversibility:	1	1	1	1	-
Probability:	2	1	2	1	-
Total SP:	28	20	28	20	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Dust nuisance generated by the operation of machinery and vehicles.	**Activity:** The construction activities of the proposed project could potentially result in fugitive dust emissions due to vegetation removal. Dust could spread into the surrounding areas. The significance of this potential impact will likely; however, be only temporary.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	2	2	2	2	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Extent:	1	1	1	1	-
Irreplaceable:	1	1	1	1	-
Reversibility:	2	2	2	2	-
Probability:	4	3	4	3	-
Total SP:	40	24	40	24	-
Significance rating:	M	L	M	L	-
Cumulative impact:	L	L	L	L	-
Nature of impact: Transformation of an aquatic Critical Biodiversity Area (CBA) and Ecological Support Area (ESA), associated with the Dwarsspruit as a result of construction activities	**Activity:** Transformation of an aquatic Critical Biodiversity Area (CBA) and Ecological Support Area (ESA), associated with the Dwarsspruit as a result of construction activities				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	2	2	4	2	-
Duration:	4	3	4	3	-
Extent:	2	2	2	2	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Irreplaceable:	3	2	4	2	-
Reversibility:	4	2	4	2	-
Probability:	5	2	5	2	-
Total SP:	75	24	90	24	-
Significance rating:	MH	L	MH	L	-
Cumulative impact:	M	L	M	L	-
Nature of impact: Disturbance of-/damage to aquatic and semi-aquatic faunal habitats, associated with the Dwarsspruit as a result of construction activities	**Activity:** Disturbance of-/damage to aquatic and semi-aquatic faunal habitats, associated with the Dwarsspruit				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	2	2	4	4	-
Duration:	4	2	4	4	-
Extent:	2	1	2	2	-
Irreplaceable:	3	1	3	4	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Reversibility:	3	1	3	4	-
Probability:	4	2	5	5	-
Total SP:	56	11	80	90	-
Significance rating:	M	L	MH	L	-
Cumulative impact:	M	L	M	L	-
Nature of impact: Contamination of the Dwarsspruit by surface material erosion.	**Activity:** Contamination of the Dwarsspruit by surface material erosion.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	2	1	2	1	-
Extent:	3	1	3	1	-
Irreplaceable:	3	1	3	1	-
Reversibility:	3	1	3	1	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Probability:	3	2	3	2	-
Total SP:	48	11	48	11	-
Significance rating:	L	L	L	L	-
Cumulative impact:	L	L	L	L	-
Nature of impact: Contamination of the Dwarsspruit by dust generation and emissions	**Activity:** The construction activities associated with the proposed development, could potentially result in slight fugitive dust emissions, due to vegetation clearance and movement of machinery and equipment. Generated dust could potentially spread into the surrounding undeveloped landscape and contaminate the Dwarsspruit.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	2	2	2	2	-
Duration:	2	1	2	1	-
Extent:	3	1	3	1	-
Irreplaceable:	3	1	3	1	-
Reversibility:	3	1	3	1	-
Probability:	2	2	2	2	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Total SP:	26	11	26	11	-
Significance rating:	L	L	L	L	-
Cumulative impact:	L	L	L	L	-
Nature of impact: Terrestrial and aquatic alien invasive species establishment within the Dwarsspruit	**Activity:** The proposed development area could be prone to alien invasive species establishment, due to surface disturbance and vegetation clearance caused by construction activities. The presence of the Dwarsspruit directly adjacent north of the assessment area, could further also potentially act as a significant transport/distribution vector for numerous terrestrial and aquatic alien invasive species into the broader region.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	4	1	4	1	-
Extent:	3	1	3	1	-
Irreplaceable:	3	1	3	1	-
Reversibility:	2	1	2	1	-
Probability:	3	2	3	2	-
Total SP:	48	10	48	10	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Significance rating:	L	L	L	L	-
Cumulative impact:	L	L	L	L	-
Nature of impact: Impeding and contamination of the flow regime of the Dwarsspruit, within the associated local and broader quaternary surface water catchment- and drainage area	**Activity:** Impeding and contamination of the flow regime of the Dwarsspruit, within the associated local and broader quaternary surface water catchment- and drainage area				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	6	2	-
Duration:	2	1	4	1	-
Extent:	3	1	3	1	-
Irreplaceable:	3	1	3	1	-
Reversibility:	4	1	2	1	-
Probability:	3	2	5	2	-
Total SP:	48	12	90	10	-
Significance rating:	L	L	MH	L	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Cumulative impact:	L	L	M	L	-
Nature of impact: Contamination/eutrophication of the Dwarsspruit by wash water from the layer house site no 8 wash-out process, within the associated local and broader quaternary surface water catchment- and drainage area	**Activity:** Contamination/eutrophication of the Dwarsspruit by wash water from the layer house site no 8 wash-out process, within the associated local and broader quaternary surface water catchment- and drainage area.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	6	2	-
Duration:	4	1	4	1	-
Extent:	3	1	3	1	-
Irreplaceable:	3	1	3	1	-
Reversibility:	2	1	2	1	-
Probability:	3	2	5	2	-
Total SP:	48	10	90	10	-
Significance rating:	L	L	MH	L	-
Cumulative impact:	L	L	M	L	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Nature of impact: Contamination/eutrophication of groundwater by wash water from the twenty (20) chicken layer houses wash-out processes	**Activity:** Contamination/eutrophication of groundwater by wash water from the twenty (20) chicken layer houses wash-out processes				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	4	1	4	1	-
Extent:	3	1	3	1	-
Irreplaceable:	4	1	4	1	-
Reversibility:	4	2	4	2	-
Probability:	4	2	4	2	-
Total SP:	84	13	84	13	-
Significance rating:	MH	L	MH	L	-
Cumulative impact:	MH	L	MH	L	-
Nature of impact:	**Activity:** Dolerite found in the study area can create a potential impact where a preferential path can be created where the potential leachate from the evaporation ponds and septic tanks from the facility				No construction phase impacts are associated with the

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Infiltration of effluent and chemicals that have the potential to change the quality of the groundwater.	can pollute the groundwater by changing the quality of the groundwater. This dolerite intrusions can bake the surrounding geology and cause the geology to weather which increases the permeability for contaminants.				no-go alternative thus no assessment has been undertaken.
Magnitude:	6	4	6	4	-
Duration:	4	2	4	2	-
Extent:	2	2	2	2	-
Irreplaceable:	3	2	3	2	-
Reversibility:	3	1	3	1	-
Probability:	3	2	3	2	-
Total SP:	54	33	54	33	-
Significance rating:	M	L	M	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Infiltration of effluent and chemicals that have the potential to change the quality of the groundwater.	**Activity:** Infiltration of effluent and chemicals that have the potential to change the quality of the groundwater. Taking in to account the site-specific properties such as: • Recharge (average); • Rainfall (average rainfall MAP: 600 - 750 mm); • Temperature (average annual temperature of 18.30°C);				No construction phase impacts are associated with the no-go alternative thus no

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
	• Topography and drainage (Northern drainage – towards topographical depression – Dwarspruit); • Water table (deep water table of 15 - 30 mbgl. – swl BULBH1 37.2 mbgl); • Fractured weathered aquifer (very high permeability); • Groundwater vulnerability (Insignificant to very low), and, • Groundwater quality (good quality with respect to EC Values).				assessment has been undertaken.
Magnitude:	4	4	4	4	-
Duration:	4	3	4	3	-
Extent:	2	2	2	2	-
Irreplaceable:	2	2	2	2	-
Reversibility:	2	2	2	2	-
Probability:	2	1	2	1	-
Total SP:	28	13	28	13	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Occupational health and safety.	**Activity:** During the construction phase, accidents, occupational diseases, ill health and damage to property can occur if pre-cautionary measures are not taken. Increased movement of vehicles				No construction phase impacts are associated with the no-go alternative thus no

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
	may lead to increased accidents among local communities, construction workers and vehicle operators.				assessment has been undertaken.
Magnitude:	10	4	10	4	-
Duration:	2	2	2	2	-
Extent:	2	2	2	2	-
Irreplaceable:	4	4	4	4	-
Reversibility:	4	4	4	4	-
Probability:	3	2	3	2	-
Total SP:	66	32	66	32	-
Significance rating:	M	L	M	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Construction activities may have a positive impact on the local and regional socio-economic conditions.	**Activity:** During the construction phase of the project the construction process may have a positive impact on the local and regional socio-economic conditions by means of job creation.				The proposed development will not take place and as such no socio-economic benefits will be derived from this construction period. The impact

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
					will thus be a negative one.
Magnitude:	4	N/A	4	N/A	-
Duration:	2		2		-
Extent:	2		2		-
Irreplaceable:	0		0		-
Reversibility:	0		0		-
Probability:	4		4		-
Total SP:	32		32		-
Significance rating:	L (+)		L (+)		-
Cumulative impact:	-		-		-
Nature of impact: Damage and destruction of vertebrate fossils during excavation activities (Heritage).	**Activity:** Excavation activities can result in the discovery of cultural and historical artefacts beneath the earth surface. Damage or loss can occur if the correct procedures are not followed. However, based on the previously disturbed nature of the property as well as the limited nature and scale of the proposed development, it is unlikely that the proposed development will negatively impact on significant archaeological or palaeontological heritage.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Magnitude:	4	2	4	2	-
Duration:	2	2	2	2	-
Extent:	1	1	1	1	-
Irreplaceable:	2	2	2	2	-
Reversibility:	4	4	4	4	-
Probability:	2	1	2	1	-
Total SP:	26	11	26	11	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Noise nuisance generated by construction works, vehicles and personnel.	**Activity:** The operating of vehicles and machinery on site results in the generation of noise disturbing users of the surrounding area.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	2	2	2	2	-

Planning, design and construction phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Duration:	2	2	2	2	-
Extent:	1	1	1	1	-
Irreplaceable:	2	2	2	2	-
Reversibility:	1	1	1	1	-
Probability:	4	3	4	3	-
Total SP:	32	24	32	24	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-

OPERATIONAL PHASE IMPACTS

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Nature of impact: Handling of general waste on the development site. Including waste emissions and pollution.	**Activity:** Waste will be generated on site, if not disposed of correctly it will become a nuisance within the area				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	4	4	4	4	-
Extent:	2	1	2	1	-
Irreplaceable:	2	1	2	1	-
Reversibility:	1	1	1	1	-
Probability:	4	3	4	3	-
Total SP:	52	27	52	27	-
Significance rating:	M	L	M	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact:	**Activity:**				No operational phase impacts are associated with the

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Surface and groundwater contamination from the Evaporation Ponds and Septic tanks.	The possibility that the surface water and groundwater to become contaminated due to the infrastructure associated with the Chicken Houses, therefore the Evaporation Ponds and septic tanks – The Evaporation Ponds will be lined with a HDPE liner.				no-go alternative thus no assessment has been undertaken.
Magnitude:	4	4	4	4	-
Duration:	4	2	4	2	-
Extent:	2	2	2	2	-
Irreplaceable:	2	2	2	2	-
Reversibility:	3	2	3	2	-
Probability:	2	2	2	2	-
Total SP:	30	24	30	24	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Increased risk of veld fires.	**Activity:** Due to the presence of personnel in natural areas, as well as hazardous substances present on site, fires can occur if not managed to the correct standard.				No operational phase impacts are associated with the no-go alternative thus no assessment

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
					has been undertaken.
Magnitude:	10	6	10	6	-
Duration:	4	2	4	2	-
Extent:	2	2	2	2	-
Irreplaceable:	3	2	3	2	-
Reversibility:	4	3	4	3	-
Probability:	4	2	4	2	-
Total SP:	92	30	92	30	-
Significance rating:	MH	L	MH	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Over-extraction of groundwater from the three boreholes	**Activity:** Over-extraction of groundwater from the three boreholes.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Magnitude:	4	2	4	2	-
Duration:	3	1	3	1	-
Extent:	3	1	3	1	-
Irreplaceable:	3	1	3	1	-
Reversibility:	3	1	3	1	-
Probability:	3	2	3	2	-
Total SP:	48	10	48	10	-
Significance rating:	L	L	L	L	-
Cumulative impact:	L	L	L	L	-
Nature of impact: Infestation of the area with alien and invasive species.	**Activity:** The eradication and spread control of alien invasive species.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	4	4	4	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-
Irreplaceable:	2	2	2	2	-
Reversibility:	1	1	1	1	-
Probability:	3	2	3	2	-
Total SP:	36	22	36	22	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Handling Of Layer Chickens, Culling and Vaccinations.	**Activity:** The handling of layer chickens on the proposed chicken farm is of uttermost importance to ensure that unnecessary injuries and illnesses to the chickens do not occur.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	4	4	4	-
Duration:	4	4	4	4	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Extent:	1	1	1	1	-
Irreplaceable:	2	2	2	2	-
Reversibility:	1	1	1	1	-
Probability:	3	2	3	2	-
Total SP:	36	24	36	24	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Biosecurity measures and pest & rodent control.	**Activity:** When Biosecurity measures are not up to standard famine an illness can occur on site; for a chicken layer farm this would be a detrimental impact if not managed correctly.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	4	4	4	-
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Irreplaceable:	2	2	2	2	-
Reversibility:	1	1	1	1	-
Probability:	3	2	3	2	-
Total SP:	36	24	36	24	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Operation Activities may have a positive impact on the local and regional socio economic conditions.	**Activity:** During the operational phase of the proposed development will create employment opportunities for individuals from the Local Community.				The proposed development will not take place and as such no socio-economic benefits will be derived from this construction period. The impact will thus be a negative one.
Magnitude:	4	N/A	4	N/A	-
Duration:	4		4		-
Extent:	2		2		-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Irreplaceable:	0		0		-
Reversibility:	0		0		-
Probability:	5		5		-
Total SP:	50		50		-
Significance rating:	M (+)		M (+)		-
Cumulative impact:	-		-		-
Nature of impact: Occupational Health and Safety.	**Activity:** During the operation phase, accidents, occupational diseases, ill health and damage to property can occur if pre-cautionary measures are not taken.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	10	2	10	2	-
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-
Irreplaceable:	4	4	4	4	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Reversibility:	4	4	4	4	-
Probability:	3	2	3	2	-
Total SP:	69	30	69	30	-
Significance rating:	M	L	M	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Noise nuisance generated by site operations, the presence of loading trucks for egg collection.	**Activity** Noise nuisance that may be created by the operation and maintenance work. The presence of loading truck that will load eggs from the proposed facility. Noise is anticipated from the cooling fans in the chicken houses. The impact will be very low as the Chicken Houses are situated on agricultural zoned land that is surrounded by feedlots, cultivated agricultural farmsteads (including residences).				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-
Irreplaceable:	1	1	1	1	-
Reversibility:	1	1	1	1	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Probability:	3	2	3	2	-
Total SP:	33	18	33	18	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-

DECOMMISSIONING PHASE

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Nature of impact: Handling of general waste on the development site. Including waste emissions and pollution.	**Activity:** Waste will be generated on site, if not disposed of correctly it will become a nuisance within the area				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	4	4	4	4	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Extent:	2	1	2	1	-
Irreplaceable:	2	1	2	1	-
Reversibility:	1	1	1	1	-
Probability:	4	3	4	3	-
Total SP:	52	27	52	27	-
Significance rating:	M	L	M	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Surface and groundwater contamination from the Evaporation Ponds and Septic tanks.	**Activity:** The possibility that the surface water and groundwater to become contaminated due to the infrastructure associated with the Chicken Houses, therefore the Evaporation Ponds and septic tanks – The Evaporation Ponds will be lined with a HDPE liner.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	4	4	4	-
Duration:	4	2	4	2	-
Extent:	2	2	2	2	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Irreplaceable:	2	2	2	2	-
Reversibility:	3	2	3	2	-
Probability:	2	2	2	2	-
Total SP:	30	24	30	24	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Increased risk of veld fires.	**Activity:** Due to the presence of personnel in natural areas, as well as hazardous substances present on site, fires can occur if not managed to the correct standard.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	10	6	10	6	-
Duration:	4	2	4	2	-
Extent:	2	2	2	2	-
Irreplaceable:	3	2	3	2	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Reversibility:	4	3	4	3	-
Probability:	4	2	4	2	-
Total SP:	92	30	92	30	-
Significance rating:	MH	L	MH	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Over-extraction of groundwater from the three boreholes	**Activity:** Over-extraction of groundwater from the three boreholes.				No construction phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	3	1	3	1	-
Extent:	3	1	3	1	-
Irreplaceable:	3	1	3	1	-
Reversibility:	3	1	3	1	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Probability:	3	2	3	2	-
Total SP:	48	10	48	10	-
Significance rating:	L	L	L	L	-
Cumulative impact:	L	L	L	L	-
Nature of impact: Infestation of the area with alien and invasive species.	**Activity:** The eradication and spread control of alien invasive species.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	4	4	4	-
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-
Irreplaceable:	2	2	2	2	-
Reversibility:	1	1	1	1	-
Probability:	3	2	3	2	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Total SP:	36	22	36	22	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Handling Of Layer Chickens, Culling and Vaccinations.	**Activity:** The handling of layer chickens on the proposed chicken farm is of uttermost importance to ensure that unnecessary injuries and illnesses to the chickens do not occur.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	4	4	4	-
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-
Irreplaceable:	2	2	2	2	-
Reversibility:	1	1	1	1	-
Probability:	3	2	3	2	-
Total SP:	36	24	36	24	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-
Nature of impact: Biosecurity measures and pest & rodent control.	**Activity:** When Biosecurity measures are not up to standard famine an illness can occur on site; for a chicken layer farm this would be a detrimental impact if not managed correctly.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	4	4	4	-
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-
Irreplaceable:	2	2	2	2	-
Reversibility:	1	1	1	1	-
Probability:	3	2	3	2	-
Total SP:	36	24	36	24	-
Significance rating:	L	L	L	L	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Cumulative impact:	-	-	-	-	-
Nature of impact: Operation Activities may have a positive impact on the local and regional socio economic conditions.	**Activity:** During the operational phase of the proposed development will create employment opportunities for individuals from the Local Community.				The proposed development will not take place and as such no socio-economic benefits will be derived from this construction period. The impact will thus be a negative one.
Magnitude:	4	N/A	4	N/A	-
Duration:	4		4		-
Extent:	2		2		-
Irreplaceable:	0		0		-
Reversibility:	0		0		-
Probability:	5		5		-
Total SP:	50		50		-
Significance rating:	M (+)		M (+)		-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Cumulative impact:	-		-		-
Nature of impact: Occupational Health and Safety.	**Activity:** During the operation phase, accidents, occupational diseases, ill health and damage to property can occur if pre-cautionary measures are not taken.				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	10	2	10	2	-
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-
Irreplaceable:	4	4	4	4	-
Reversibility:	4	4	4	4	-
Probability:	3	2	3	2	-
Total SP:	69	30	69	30	-
Significance rating:	M	L	M	L	-
Cumulative impact:	-	-	-	-	-

Operational Phase	Alternative 1		Alternative 2		No-Go Alternative
	Before Mitigation	After Mitigation	Before Mitigation	After Mitigation	
POTENTIAL IMPACTS ON GEOGRAPHICAL AND PHYSICAL ASPECTS:					
Nature of impact: Noise nuisance generated by site operations, the presence of loading trucks for egg collection.	**Activity** Noise nuisance that may be created by the operation and maintenance work. The presence of loading truck that will load eggs from the proposed facility. Noise is anticipated from the cooling fans in the chicken houses. The impact will be very low as the Chicken Houses are situated on agricultural zoned land that is surrounded by feedlots, cultivated agricultural farmsteads (including residences).				No operational phase impacts are associated with the no-go alternative thus no assessment has been undertaken.
Magnitude:	4	2	4	2	-
Duration:	4	4	4	4	-
Extent:	1	1	1	1	-
Irreplaceable:	1	1	1	1	-
Reversibility:	1	1	1	1	-
Probability:	3	2	3	2	-
Total SP:	33	18	33	18	-
Significance rating:	L	L	L	L	-
Cumulative impact:	-	-	-	-	-

6 RECOMMENDATIONS OF THE EAP

Soil erosion:

- Make use of geotextiles within disturbed areas of steeper topography to avoid erosion through surface water runoff;
- Construct within the low-flow (dry) period, as much as possible; and,
- Correct site reinstatement and landscaping following any disturbances will abate channel and gulley formation.

Dust Nuisance:

- Implement dust suppression measures e.g. regular watering of dusty surfaces.

Noise Nuisance:

- Limit working hours of noisy equipment; and,
- Ensure that employees and staff conduct themselves in an acceptable manner while on site, both during work hours and after hours.

Site Specific Conditions:

- The Evaporation Ponds should be lined by a liner that has been approved by DFFE and DWS.
- A 150m buffer around the Dwarsspruit River must implemented when constructing the chicken houses and evaporation ponds.

Fire Protection:

- All work must comply with Act 103 of 1977 and SABS 0400-1990; and,
- Fire extinguishers to comply with SABS 810, 889 & 1151.

7 PERSONS RESPONSIBLE FOR IMPLEMENTING THIS EMPR

The “Responsibility” columns in the impact and mitigation tables provided below indicate which team member(s) are responsible for implementation of the identified mitigation measures; these team members include the following:

- Construction contractor(s);
- Construction manager;

- Applicant / Developer; and the
- Designated Environmental Officer

The sections below list further supplementary measures, which must also be implemented by the relevant team members.

During the **construction phase**, the **construction Contractor** will:

- Be responsible to have the EMPr available on site at all times;
- Provide the applicant with a "Method Statement" which will indicate the procedures that will be applied in order to meet the requirements of any aspect of the EMPr; and
- Ensure that all problems identified during environmental inspections, are addressed and rectified as soon as reasonably possible.

During the **construction phase**, the **Contract Project Managers** will:

- Have the authority to stop work and issue fines;
- Receive reports from the ECO and report to the client;
- Enforce contractor obligations to the EMP-r; and,
- Support the ECO in his/her roles and responsibilities.

During the **construction phase**, the **Environmental Control Officer** will:

- Meet with the contractor and project manager to hand over the site and go through the content of the EMPr, including the "do's and don'ts" of the project, to ensure that the parties understand their responsibilities to the EMPr;
- Be accountable for monitoring and auditing activities to ensure compliance with the EMP-r and the Environmental Authorisation;
- Work correctively with other role-players, but not be influenced in opinion and must report to the applicant only;
- May, in the event of there being a serious threat to or impact on the environment, correspond with the contract project manager to stop work;
- Complete an ECO checklist after each site inspection and distribute this to the project team within 5 days; and,
- Conduct a final environmental audit of the project on completion of construction and rehabilitation, for submission to the DEA&DP to review.

During the **operational phase** the **Applicant/Developer**, will be responsible to prevent negative environmental impacts, and as such will be responsible to:

- Set aside a budget for maintenance;
- Maintain all facilities and infrastructure in good working order to effectively fulfil its intended purpose and to prevent negative environmental impacts;
- Not construct any additional buildings, infrastructure, etc. contrary to the Environmental Authorisation, without performing an environmental impact assessment where listed activities of the 2017 NEMA EIA Regulations are triggered; and,
- To immediately remedy any aspects that contribute to negative environmental impacts.

7.1 On-site Communication

The following sections describe the site communication measures that will need to be implemented.

7.1.1 Site Instruction Entries

The Site Instruction book must be used for the recording of general site instructions as they relate to the works on site. It must also be used for the issuing of **stop work orders** for the purposes of immediately halting any particular activities of the contractor in lieu of the environmental risk that they may pose.

7.1.2 Method Statements

Method statements from the Contractor will be required for specific sensitive actions on request by the authorities or the ECO.

A method statement forms the baseline information on which work in sensitive environments takes place and is a “live document” allowing for modifications to be negotiated between the Contractor and ECO / Engineer, as circumstances unfolds.

A method statement describes the scope of the intended work, step-by-step, in order for the ECO and Engineer to understand the Contractor’s intentions. This will enable them to assist in devising any mitigation measures, which would minimise environmental impacts during these tasks. For each instance wherein it is requested that the Contractor submit a method statement to the satisfaction of the ECO, the format must clearly indicate the following:

- **What** – a brief description of the work to be undertaken;
- **How –** a detailed description of the process of work, methods and materials;

- **Where –** a description/sketch map of the locality of work (if applicable); and
- **When –** the sequencing of actions with due commencement dates and completion date estimates.

All method statements will form part of the EMPr documentation and are subject to all terms and conditions contained within the EMPr main document.

The Contractor must submit the method statement to the ECO before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the ECO.

7.1.3 Record Keeping

All records related to the implementation of this EMPr (e.g. site instruction book, method statements) must be kept together in an office where they are safe and can be retrieved easily. These records must be kept for two years and must at any time be available for scrutiny by any relevant authorities.

7.2 Monitoring

Several monitoring actions are proposed which would be undertaken by various project role players. For detail on these actions, "Responsible Person/Party", and "Monitoring Frequency" associated with the identified mitigation measures, refers to the "Monitoring" column in the impact assessment below (Chapter 8).

7.3 Performance Assessment and Reporting on EMPr Compliance

A suitably-qualified Environmental Control Officer (ECO) must be appointed by the Applicant/Developer to oversee the implementation of the construction phase mitigation measures described in this EMPr, as well as the conditions of authorisation as described in the Environmental Authorisation.

The ECO may not be someone appointed by the contractor, engineer or other party involved with this project, other than the Applicant / Developer.

The following applies, amongst others, to the ECO's role:

- The ECO must undertake **monthly site visits** during the **construction phase**,
- The ECO must **report to** the Applicant/Developer only.
- The ECO must present an **environmental site induction/awareness training session** to all personnel before work on site commences, as are also described below; and

- After completion of the construction activities, an ECO inspection must be undertaken by the ECO, before commencement of the operational phase, in order to determine compliance with the EMPr and the Environmental Authorisation. The report must be submitted to the Competent Authority.
- An environmental audit must be completed by and independent person with the relevant environmental auditing expertise at least once during the construction phase and the audit report must be submitted within three (3) months of the completion of construction to the Competent Authority.

The ECO can recommend the stopping of works if in his/her opinion there is a serious threat to, or impact on the environment, caused directly from the construction operations. This authority is to be limited to emergency situations where consultation with the Engineer or Applicant is not immediately available. In all such work stoppage situations the ECO is to inform the Engineer and Applicant of the reasons for the stoppage as soon as possible.

Upon failure by the Contractor or his employee(s) to show adequate consideration to the environmental aspects of this contract, the ECO may recommend to the Engineer to have the contractor's representative or any employee(s) removed from the site or work suspended until the matter is remedied. No extension of time will be considered in the case of such suspensions and all costs will be borne by the contractor.

7.3.1 ECO Site Inspection Reports

The ECO site inspection reports (also called “ECO checklists”) will report on the compliance of the construction phase mitigation measures contained in the EMPr, as well as the conditions of approval described in the Environmental Authorisation. The report must be submitted to the Applicant, within five (5) days of the ECO site inspection, and must be made available to the construction Contractor. Copies of the inspection reports must be kept on site.

The contractor’s meeting minutes must reflect environmental queries, agreed actions and dates of eventual compliance. These minutes form part of the official environmental record.

7.3.2 Photographs

It is recommended that photographs are taken of the site prior to, during and immediately after construction as a visual reference. These photographs must be stored with other records related to this EMPr. If captured in digital format, hard copies, in colour, must be kept with all other records relevant to the implementation of this EMPr.

8 ENVIRONMENTAL AWARENESS PLAN

8.1 Environmental Awareness and Risk Training

All contractor team members involved in work on site are to be briefed on their obligations towards environmental controls and methodologies in terms of this EMPr, prior to work commencing. The briefing will usually take the form of an on-site talk and demonstration by the ECO. The education/awareness programme must be aimed at all levels of management within the contractor team. See "basic rules of conduct" below.

8.1.1 Basic Rules of Conduct

The following list represents the basic *Do's* and *Don'ts* towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid.

NOTE: ALL new site personnel must attend an environmental awareness/induction presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ECO.

DO:

- Clear your work areas of litter and building rubble at the end of each day – use the waste bins provided and prevent litter from being blown away by wind.
- Report all fuel or oil spills immediately and stop the spill from continuing.
- Dispose of cigarettes and matches carefully, so to prevent veld fires (arson and littering is an offence).
- Confine work and storage of equipment to within the immediate work area.
- Use all safety equipment and comply with all safety procedures.
- Ensure a working fire extinguisher is immediately at hand if any "HOT WORK" is undertaken e.g. welding, grinding, gas cutting etc.
- Prevent excessive dust and noise.

DO NOT:

- Damage any vegetation outside of the development footprint.
- Do not litter - report dirty or full facilities, i.e. full dustbins and dirty or blocked toilets.
- Do not make any fires.
- Do not enter any fenced off or demarcated areas.

- Do not allow waste, litter, oils or foreign materials into any storm water channels or drains or watercourses.
- Do not litter or leave food lying around.

9 IMPACTS AND MITIGATION MEASURES

A number of potential environmental impacts that may arise during the project have been identified. These are outlined in the following table below, and guidelines and mitigation measures are provided. The Contractor must familiarise himself with the requirements of the EMPr, keeping in mind that other site-specific requirements as outlined in the Environmental Authorisation must also be complied with.

9.1 Construction Phase Environmental Management Programme

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
1. **ACTIVITY:** PERMITS AND AUTHORISATIONS				
1.1	**Aspects:** Legislative compliance. **Impact:** Non-compliance with South African environmental legislation. **Objective:** Ensure compliance with all triggered environmental legislation. **Target:** Commence site establishment with all permission and approvals received and on hand.	Developer	**Monitoring Action:** Obtain copies of all permits; Record Keeping **Responsible Person/Party:** The Applicant **Monitoring Frequency:** Once off	
	Mitigation/Management Measures: a. The Developer is to have the following permits on commencement: • Environmental Authorisation; • Water Use License; • Waste Management License; and, • Environmental Management Programme.			
2. **ACTIVITY:** SITE LAYOUT PLANNING				
2.1	**Aspects:** Site Layout Plan. **Impact:** Negative impact on the environment of unmanaged and unplanned placement of Infrastructure. **Objective:** To ensure acceptable impact and management of environmental issues at the main site and storage site during construction by proper planning of layout of infrastructure placement. **Target:** All areas not demarcated for construction must remain vegetated and the impact must be minimised.	Contractor	**Monitoring Action:** Records of the Site Layout must be present on site. **Responsible Person/Party:**	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
Mitigation/Management Measures: • Draw up and submit for approval a Site Layout Master Plan. This plan must show the final positions and extent of all permanent and temporary site structures and infrastructure; • The planning for layout must be done in consultation on-site with the Environmental Control Officer (ECO); • The Contractor may not deface, paint, damage or mark any natural features situated in or around the site for survey or other purposes; • The Contractor must ensure that all construction personnel, labourers and equipment always remain within the demarcated construction sites; • No servicing of vehicles may be permitted on site, unless for emergency purposes; • Stockpiles may not be situated in such a manner that they obstruct pathways; • Location of storage area must consider prevailing winds, distance to water bodies and general on-site topography; • Place infrastructure as far as possible on sites that have already been transformed; • Facilities may not be used as staff accommodation; • The Contractor's camp layout must consider availability of access for deliveries and services and any future works; • The Contractor's camp must be of sufficient size to accommodate the needs of all sub-contractors that may work on the project; and, • The Contractor must implement the following as required:		Contract Project Manager / Engineer **Monitoring Frequency:** Once off	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	○ Suitable sanitation facilities, adequate for the number of staff on site (1 for every 15 personnel and 1 for each gender); and, ○ Facilities for solid waste collection.			
3. **ACTIVITY:** CONSTRUCTION PROGRAMME / SCHEDULE				
3.1	**Aspects:** Project Management. **Impact:** Order and timing of construction activities and associated impacts. **Objective:** To Provide a clear indication of the order by which key construction activities will transpire. **Target:** Anticipate timing of impacts to coordinate the availability of any specialists and/or authorities who may be required to conduct site inspections.	All Construction Parties	**Monitoring Action:** Meetings; Risk Register; ECO Audit Checklist; Photographs **Responsible Person/Party:** Contract Project Manager / Contractor / ECO **Monitoring Frequency:** Once off	
	Mitigation/Management Measures: • Draw up and sign off a project schedule with all contributing parties and service providers to commit to a timeline during which time construction milestones will be completed; • Communicate any deviation from this schedule to all parties, so as to provide parties with sufficient opportunity for alternative arrangements to be made; • Establish a risk register to identify and monitor potential factors which may result in setbacks/ delays on tasks within the project schedule; • Hold management meetings with representatives of the project manager, contractor, engineer and other contributing parties to monitor and anticipate changes; and,			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Should circumstances/ incidents arise which may pose a risk to the project schedule, the construction contractor, and engineer and ECO are to keep records of this and the latter communicate this in the ECO Monthly Audit Checklist.			
4. **ACTIVITY:** COMMUNICATION WITH LAND-OWNERS				
4.1	**Aspects:** Landowner Consent. **Impact:** Disturbance of existing land use. **Objective:** Maintain a conflict-free relationship with landowners/users. **Target:** No complaints received from landowners/users of affected property.	Contract Project Manager / Contractor & Applicant	**Monitoring Action:** Meetings; Risk Register. **Responsible Person/Party:** Contract Project Manager / Contractor / ECO **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: • Landowner has to provide consent to the site supervisor of the construction contractor prior to entering the construction footprint area for safety purposes; • All property gates are to be kept closed when not in use (or kept in the open/closed state in which it was found); and, • Any complaint or liaison with regard to environmental aspects, compensation or disorder to economic activities, must not be addressed by the contractor. A public complaint register must be kept on site and the contract project manager must inform the Developer and/or ECO to take further action.			
5. **ACTIVITY:** SITE ESTABLISHMENT				
5.1	**Aspects:** Topsoil removal and soil erosion. **Impact:** The clearing of topsoil and excavation for the establishment of building foundations may result in the destruction of fertile topsoil and loss of vegetation cover associated with the development.	Construction contractor	**Monitoring Action:** ECO to take photographs of site	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
Objective: Conserve and protect topsoil from erosion and destruction. **Target:** Topsoil condition maintained. **Mitigation/Management Measures:** • Remove topsoil approximately 300mm deep from establishment area and stockpile areas; • Topsoil stockpiles to be kept free from weeds; • Construction should take place during the low flow months (winter), as much as possible in order to minimise the risk to the hydrology of the system and to prevent excessive sediment and debris being washed downstream; • Correct site reinstatement and landscaping following any disturbances will abate channel and gulley formation; • Disturbed areas, that will not form part of the operational footprint, but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate indigenous vegetation and/or seed mixes; • Sheet runoff from cleared areas, paved surfaces and access roads needs to be curtailed; • Topsoil stockpiles to be placed on a levelled area and measures to be implemented to safeguard the piles from being washed away in the event of heavy rain/storm water; • Topsoil need to be stored on designated areas only. This need to be planned and indicated in the site-layout plan; • Ensure that topsoil is not mixed with subsoil and/or any other excavated material; • Provide containment and settlement facilities for effluents from concrete mixing and washing facilities; • Temporarily stored topsoil must be re-applied within 6 months, topsoil stored for longer need to be managed according to a detailed topsoil management plan; • Provide spill containment facilities for hazardous materials like fuel and oil;		before clearance; ECO Audit Checklist. **Responsible Person/Party:** ECO **Monitoring Frequency:** Bi-Monthly	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Place containers of hazardous materials like fossil fuels and oil in designated areas (near existing buildings) and ensure that the entire surface is temporarily cemented and provided with low retaining walls right around the designated areas, flat drip trays can also be used, since they are movable; • Topsoil must be used in all rehabilitation activities and may not be compacted to ensure that its plant support capacity remain of high quality; • Rehabilitate denude areas especially slopes with appropriate species and erosion protection measures i.e. geotextiles, rocks, topsoil mixtures as per specifications; • Stabilise and revegetate all areas bare of vegetation as soon as possible; • Monitor the entire site for signs of erosion throughout the construction and operational phases of the project; • All erosion features must be rehabilitated as soon as possible; • Implement erosion control measures where necessary; • Implement suitable erosion prevention measures during the operation, construction and decommissioning phase. • Make use of surface erosion measures within disturbed areas to avoid erosion in times of high risk (e.g. rain season and time of high wind speeds); • Stormwater management along any roadways and paths to reduce gulley erosion formation; • Stormwater management should prevent excessive sediment to be carried into the watercourses; • Soil disturbance must be kept to a minimum within and around the development footprint.			
5.2	**Aspects** Direct impact on vegetation and fauna during construction and loss of species. **Impact:** Direct impact on vegetation and fauna during construction and loss of species **Objective:** Prevent direct impact on vegetation and fauna during construction and loss of species	Construction contractor		

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
Target: No direct impact on vegetation and fauna during construction and loss of species **Mitigation/Management Measures:** • .Abnormal loads must be timed to avoid times of year when traffic volumes are likely to be higher, as would All disturbed and compacted soils need to be ripped, re-profiled and reseeded and/or replanted with indigenous species; • Areas to be cleared should be agreed and demarcated before the start of the clearing operations; • Stabilise all erosion features on site; • No personnel are allowed to collect, harvest or destroy any species of flora or fauna on or off the site, unless specifically earmarked for removal; • Stormwater management should maintain the natural flow regime as far as possible; • Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. This is to prevent any litter, rubble or possible pollution to enter the watercourses downstream of the site and the surrounding environment in general; • Maintain the buffer around the Dwarsspruit river as indicated in the Aquatic Biodiversity Impact Assessment. • No open fires are allowed on site during the construction. • Smoking must be restricted to designated smoking areas. • The proposed development must remain outside of the delineated watercourses buffer as per the Aquatic Biodiversity Assessment. • Development and access roads should be restricted to already disturbed areas as far as practically possible.		**Monitoring Action:** ECO Audit Checklist; Photographs; **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Vehicles used during the construction, operational, and decommissioning phase must be restricted to designated roads. • Should any threatened species be observed on the development footprint, the species must be relocated in consultation with a faunal specialist. • All emergency numbers for human-wildlife conflict events must be located at the farm offices. • At least one construction personnel must a trained snake handler (for example, the Designated Environmental Officer). • All personnel, during all phases of the construction and operation works, must be inducted to ensure that they are aware of the environmental sensitivities on the site. • Areas disturbed outside of the footprint must be rehabilitated effectively. • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone. • All management outcomes included in the Avifaunal Compliance Statement must be adhered to. • Topsoil must be retained and stockpiled for the purposes of rehabilitation.			
6. **ACTIVITY:** CONSTRUCTION SITE OPERATIONS				
6.1	**Aspects:** Surface and groundwater contamination due to construction activities such as the use of hazardous materials on site e.g., fuel and oil	Construction contractor		

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
Impact: Surface and groundwater contamination due to construction activities such as the use of hazardous materials on site e.g., fuel and oil **Objective:** Prevent Surface and groundwater contamination due to construction activities such as the use of hazardous materials on site e.g., fuel and oil. **Target: No** Prevent Surface and groundwater contamination due to construction activities such as the use of hazardous materials on site e.g., fuel and oil..		**Monitoring Action:** Photographs; ECO Audit Checklist **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
Mitigation/Management Measures: • Concrete must be mixed on mixing trays only and not on exposed soil. Concrete must be mixed only in areas which have been specially demarcated for this purpose (preferable where no natural vegetation occur); • Concrete mixing to be carried out away from sensitive areas and on impermeable surfaces; • Material Safety Data Sheets (MSDSs) must be available on site for all chemicals and hazardous substances to be used on-site, including information on their ecological impacts and how to minimise the impacts in case of leakage; • All spillage must be cleaned up immediately after they have occurred; • Spillage of petrochemical products must be avoided. In the case of accidental spillage, contaminated soil must be removed for bio-remediation or disposed of at a facility for the substance concerned. Disturbed land must be rehabilitated and seeded with vegetation seed naturally occurring on site;			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Do not locate any ablution facilities, sanitary convenience, septic tank or French drain within the 1:100-year flood line, or within a horizontal distance of 100m (whichever is greater) of a watercourse or drainage line; • Vehicles and machinery must be regularly serviced to avoid leakages; • At the work site the contractor must maintain strict surveillance to ensure that no spills occur; • No water courses may be used to clean equipment, or for bathing. All cleaning operations must take place off site at a location where wastewater can be disposed of correctly; • The discharge of any pollutants such as cement, concrete, lime, chemicals, etc. into the natural environment and the storm water system must strictly be prohibited; • Fuel and chemical storage must be done within a designated area only, which is properly bund and able to contain 110% of the capacity of fuel or chemicals stored within; • Construction vehicles must be inspected every morning before work commence to ensure that no leakages do occur; • All personnel must receive induction on how to report spillages, contain them and treat them accordingly; • Spill kits must be available at each working station; • Drip trays must be placed beneath all construction equipment that are stationary on site or within the site camp;			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Hazardous waste must be stored in bins with a lid in a demarcated waste area and must be disposed of at a hazardous treatment facility with records on file; • Any waste generated should be disposed of accordingly in registered waste (landfill) sites and not dumped on site or the surrounding area; • Regularly inspect all vehicles for leaks. Re-fuelling of vehicles must take place on a sealed surface area surrounded by berms to prevent ingress of hydrocarbons into topsoil; If any spills occur, they should be immediately cleaned up.			
7.2	**Aspects:** Handling of general waste materials on the development site. **Impact:** The presence of personnel and construction operations on site will increase the likelihood of littering and the dumping of solid waste. **Objective:** Prevent littering and the dumping of solid waste. **Target:** No littering and the dumping of solid waste.	Construction contractor	**Monitoring Action:** Photographs; ECO Audit Checklist **Responsible Person/Party:** Contractor & DEO **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: • An adequate number of scavenger proof litter bins are to be placed throughout the site. Two (2) waste bins at least must be present, one (1) for hazardous waste and one (1) for non-hazardous waste at each working site. Dumping of waste on site is prohibited; • Waste sorting and separation must form part of the environmental induction and awareness programme, to encourage personnel to collect wastepaper, glass and metal waste separately; • Keep all work sites including storage areas, offices and workshops neat and tidy;			

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	• Dedicate a demarcated and signposted storage area on site for the collection of construction waste; • All domestic waste is to be removed from site and disposed of at a registered solid waste landfill site as mentioned in the Basic Assessment Report; • Care must be taken to ensure that no waste fall off disposal vehicles on-route to the landfill. If needed, a tarpaulin can be utilised; • The burning or burying of solid waste on site is prohibited. Do not burn PVC pipes or other plastic materials, as this is regarded as hazardous waste; • Littering by construction workers shall not be permitted; • General refuse/rubbish shall be removed from site on a weekly basis to an approved registered landfill site or as soon as the waste bins are reaching full capacity; • Minimise waste by sorting wastes into recyclable and non-recyclable waste; • Ablution facilities must be serviced by a registered service provider, cleaned at least once a week, and safe disposal slips must be on file at the site office; • A bi-weekly (twice a week) litter patrol of the entire site shall be conducted by the designated Environmental Site Agent (ESA); • Hazardous waste must be sorted from non-hazardous waste and disposed of at a hazardous treatment facility, records and proof of disposal must be kept;			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• A register must be kept of the quantities of waste disposed and proof of disposal must be available at the site office; • The facility should be kept clean and tidy at all times; • Any waste generated should be disposed of accordingly in registered waste (landfill) sites and not dumped on site or the surrounding area; • All surfaces that are associated with waste and manure should have impermeable surfaces; • Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. This is to prevent any litter, rubble, or possible pollution to enter the watercourses downstream of the site and the surrounding environment in general.			
7.3	**Aspects:** Increased risk of veld fires.. **Impact:** Due to the presence of construction personnel in natural areas, fires can occur if not managed to the correct standard. Fire may occur due to the presence and use of hazardous and flammable materials on site. **Objective:** Minimise Veld Fires **Target:** Minimisal Veld Fires	Construction Contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:** DEO & ECO **Monitoring Frequency:** Monthly	
	• The Contractor shall take all reasonable and precautionary steps to ensure that fires are not started as a consequence of the activities on site; • Ensure the work site and the contractor's camp is equipped with adequate firefighting equipment. This includes at least rubber beaters when working in veldt areas, and at least one fire extinguisher of the appropriate type irrespective of the site;			

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	• Workers must be adequately trained in the handling of firefighting equipment, and can include but not limited to: o Regular fire prevention talks and drills; and, o Posting of regular reminders to staff. • No open fires are permitted anywhere on site; • Do not store any fuel or chemicals under trees; • Place containers of hazardous materials like fossil fuels and oil in designated areas (near existing buildings) and ensure that the entire surface is temporarily cemented and provided with low retaining walls right around the designated areas, flat drip trays can also be used, since they are movable; • Ensure that a good fire break around these designated areas for hazardous materials and around the footprint of the proposed project by removing grass with a scraper; • Do not store gas and liquid fuel in the same storage area (Hazardous substances to be stored in accordance with SANS); • Any fires that occur on site shall be reported to the ECO immediately and then to the relevant Authorities; • In the event of a fire, the Contractor shall immediately employ such plant and personnel as is at his disposal and take all necessary action to prevent the spread of the fire and bring it under control; • Do not permit any smoking within 3 m of any fuel or chemical storage area, or refuelling area. A designated smoking area must be established on site; and, • All construction vehicles must be fitted with at least one fire extinguisher.			
7.4	**Aspects:** Traffic. **Impact:** Traffic impacts associated with the movement of construction vehicles on site.	Construction Contractor	**Monitoring Action:** Incident Register;	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	Objective: To minimise the destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site. **Target:** Minimal destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site.		Photographs; ECO Audit Checklist **Responsible Person/Party:** Contractor, DEO & ECO **Monitoring Frequency:** Monthly	
	• During construction create designated turning areas and strictly prohibit any off-road driving or parking of vehicles and machinery outside designated areas; • Monitor the establishment of (Alien) Invasive Species and remove as soon as detected, before regenerative material can be formed; • Abnormal loads and machinery should avoid movement over gravel roads during and immediately after rainfall events, to limit destruction of road surfaces and sedimentation of downhill rivers/streams; • All vehicles must be road-worthy, be maintained to prevent fuel or oil leaks and drivers are to the licensed appropriately for the driving of their assigned vehicle. Drivers responsible for the transportation of personnel must be specifically licensed to do so; • Construction vehicles may not leave the designated roads and tracks, whilst U-Turns are prohibited on all roads; • Signage is always to be placed on vehicles; • All construction vehicles must adhere to construction sites and avoid off road to minimise impact on vegetation and soil; • After decommissioning, if access roads or portions thereof will not be of further use to the landowner, remove all foreign material and rip area to facilitate the establishment of vegetation, followed by a suitable revegetation program; and,			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Construction-related vehicles and machinery may not operate on site without reflective safety signage, car-top lights and reflective personnel gear.			
7.5	**Aspects:** Avifauna **Impact:** Permanent displacement and mortality of local populations of Red List species caused by habitat loss, disturbance, entrapment and drowning **Objective:** Prevent avifaunal incidents and displacement. **Target:** No avifaunal incidents and displacement	Construction contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:** Contractor **Monitoring Frequency:** Monthly	
	• **Mitigation/Management Measures:** • Avoid removal of sensitive vegetation types. The recommendations of the botanical study must be strictly implemented, especially as far as limitation of the construction footprint and rehabilitation of disturbed areas is concerned. • Construction activity should be restricted to the immediate footprint of the infrastructure in areas of HIGH sensitivity. • All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment. • All temporary disturbed areas should be rehabilitated according to the site's rehabilitation plan, following construction. • Access to the remainder of the site should be strictly controlled to prevent unnecessary disturbance of SCC (Species of Conservation concern)			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Measures to control noise should be applied according to current best practice in the industry. • The installation of mesh netting (over the evaporation ponds) will ensure that birds are excluded from the ponds. • Mesh netting must be maintained and replaced as and when required.			
7.6	**Aspects:** Dust nuisance generated by the operation of machinery and vehicles. **Impact:** The construction activities of the proposed project could potentially result in fugitive dust emissions due to vegetation removal. Dust could spread into the surrounding areas. The significance of this potential impact will likely; however, be only temporary. **Objective:** Management of dust **Target:** Minimal dust emissions and no complaints from surrounding landowners. .	Construction Contractor	**Monitoring Action:** ECO Audit Checklist; Documentation & Photographs **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: • . Implement suitable dust management and prevention measures during the construction phase; • Ensure all vehicles remain on designated roads and avoid the opening of detour or by-pass tracks; • Vehicles delivering or removing soil must be covered to reduce spills and windblown dust; • Any complaints received by the Contractor regarding dust will be recorded and communicated to the ECO; • Obtain a permanent tanker throughout the construction period to have access to “wet” roads when necessary; and, • Areas around the proposed project footprint must be adequately rehabilitated to prevent significant dust emissions.			
7.7	**Aspects:** Transformation of an aquatic Critical Biodiversity Area (CBA) and Ecological Support Area (ESA), associated with the Dwarsspruit as a result of construction activities	Construction Contractor	**Monitoring Action:** ECO Audit Checklist;	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
Impact: Transformation of an aquatic Critical Biodiversity Area (CBA) and Ecological Support Area (ESA), associated with the Dwarsspruit as a result of construction activities **Objective:** Prevent transformation of an aquatic Critical Biodiversity Area (CBA) and Ecological Support Area (ESA), associated with the Dwarsspruit **Target:** No transformation of an aquatic Critical Biodiversity Area (CBA) and Ecological Support Area (ESA), associated with the Dwarsspruit.		Safe Disposal Slips & Photographic Evidence **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
Mitigation/Management Measures: • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone. • It is further recommended that the continued mechanical/manual vegetation clearance and maintenance of the area situated directly to the south of the Dwarsspruit and associated with the relevant Critical Biodiversity Area two (CBA 2), should be permanently ceased, with immediate effect. The area should be adequately re-vegetated and rehabilitated, as soon as practicably possible. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist. • The proposed development construction footprint must be kept as small as practicably possible to reduce the surface impact on surrounding vegetation and no unnecessary/unauthorised footprint expansion into the broader undeveloped landscape surrounding the proposed development footprint, may take place.			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• No site construction basecamps may be established within the broader undeveloped landscape surrounding the proposed development footprint. • Adequately cordon off the proposed development construction footprint area and ensure that no construction activities, -machinery or -equipment operate or impact within the broader undeveloped landscape outside the cordoned off area. • Adequate operational procedures for construction machinery and equipment must be developed in order to strictly govern and restrict movement of machinery only within the proposed development construction footprint area and to ensure environmentally responsible construction practices and activities. • Disturbed areas within and immediately surrounding the proposed development			
7.8	**Aspects:** Contamination of the Dwarsspruit by surface material erosion. **Impact:** Contamination of the Dwarsspruit by surface material erosion. **Objective:** To avoid contamination of the Dwarsspruit by surface material erosion. **Target:** Minimise contamination of the Dwarsspruit by surface material erosion.. **Mitigation/Management Measures:** • Implement an adequate Stormwater and Erosion Management Plan during the construction phase of the proposed development, to sufficiently manage storm water runoff and clean/dirty water separation on site. This must be done in order to prevent any significant soil erosion in and around the assessment area and subsequently prevent any significant contamination of the Dwarsspruit. • It is further recommended that small temporary stormwater cut-off berms/trenches be constructed directly adjacent around the upstream sides of the proposed layer house site no 8 and evaporation ponds site no 8 construction	Construction Contractor	**Monitoring Action:** ECO to take photographs of the site and monitor dust levels on a daily basis; ECO Audit Checklist; Public Complaints Register **Responsible Person/Party:**	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	footprints. These cut-off berms/trenches must assist with clean/dirty water separation during the construction phase, by diverting and channelling clean surface water runoff from the south, around the construction footprints, towards the Dwarsspruit. • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone. • It is further recommended that the continued mechanical/manual vegetation clearance and maintenance of the area situated directly to the south of the Dwarsspruit and associated with the relevant Critical Biodiversity Area two (CBA 2), should be permanently ceased, with immediate effect. The area should be adequately re-vegetated and rehabilitated, as soon as practicably possible. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist. • Disturbed areas within and immediately surrounding the proposed development footprint area, must be adequately rehabilitated as soon as practicably possible after construction.		ECO & DEO **Monitoring Frequency:** Monthly	
7.9	**Aspects:** Contamination of the Dwarsspruit by dust generation and emissions **Impact:** The construction activities associated with the proposed development, could potentially result in slight fugitive dust emissions, due to vegetation clearance and movement of machinery and equipment. Generated dust could potentially spread into the surrounding undeveloped landscape and contaminate the Dwarsspruit. **Objective:** To avoid Contamination of the Dwarsspruit by dust generation and emissions **Target:** Minimise Contamination of the Dwarsspruit by dust generation and emissions	Construction Contractor	**Monitoring Action:** ECO to take photographs of the site and monitor dust levels on a daily basis; ECO	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
Mitigation/Management Measures: • Implement suitable dust management and prevention measures during the construction phase of the proposed development. • Construction areas and –roads to be sufficiently wetted down during the construction phase, in order to prevent significant fugitive dust emissions. • Adequate operational procedures for machinery and equipment must be developed to strictly govern and restrict movement of machinery, in order to avoid unnecessary fugitive dust emissions and ensure environmentally responsible construction practices and activities. • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone. • It is further recommended that the continued mechanical/manual vegetation clearance and maintenance of the area situated directly to the south of the Dwarsspruit and associated with the relevant Critical Biodiversity Area two (CBA 2), should be permanently ceased, with immediate effect. The area should be adequately re-vegetated and rehabilitated, as soon as practicably possible. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist. • Disturbed areas within and immediately surrounding the proposed development footprint area, must be adequately rehabilitated as soon as practicably possible after construction.		Audit Checklist; Public Complaints Register **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
7.10	**Aspects:** Terrestrial and aquatic alien invasive species establishment within the Dwarsspruit **Impact:** The proposed development area could be prone to alien invasive species establishment, due to surface disturbance and vegetation clearance caused by construction activities. The presence of the Dwarsspruit directly adjacent north of the assessment area, could further also potentially act as a significant transport/distribution vector for numerous terrestrial and aquatic alien invasive species into the broader region.. **Objective:** To avoid Terrestrial and aquatic alien invasive species establishment within the Dwarsspruit. **Target:** Minimise Terrestrial and aquatic alien invasive species establishment within the Dwarsspruit.	Construction Contractor	**Monitoring Action:** ECO to take photographs of site; Public Complaints Register; ECO Audit Checklist **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone. • It is further recommended that the continued mechanical/manual vegetation clearance and maintenance of the area situated directly to the south of the Dwarsspruit and associated with the relevant Critical Biodiversity Area two (CBA 2), should be permanently ceased, with immediate effect. The area should be adequately re-vegetated and rehabilitated, as soon as practicably possible. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist. • It is recommended that all individuals of the identified alien invasive species must be actively eradicated from the Dwarsspruit, in accordance with the National Environmental Management: Biodiversity Act (Act 10 of 2004); Alien and Invasive Species Regulations, 2014. Removed materials must also be adequately disposed of.			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Implement an adequate Alien Invasive Species Management Plan during the construction and operational phases. Such a Management Plan must be compiled by a suitably qualified and experienced ecologist. • Disturbed areas within and immediately surrounding the proposed development footprint area, must be adequately rehabilitated as soon as practicably possible after construction			
7.11	**Aspects:** Impeding and contamination of the flow regime of the Dwarsspruit, within the associated local and broader quaternary surface water catchment- and drainage area **Impact:** Impeding and contamination of the flow regime of the Dwarsspruit, within the associated local and broader quaternary surface water catchment- and drainage area **Objective:** Prevent Impeding and contamination of the flow regime of the Dwarsspruit,. **Target:** No incidences of Impeding and contamination of the flow regime of the Dwarsspruit,.			
	Mitigation/Management Measures: • Implement an adequate Stormwater and Erosion Management Plan during the construction phase of the proposed development, to sufficiently manage storm water runoff and clean/dirty water separation on site. This must be done in order to prevent any significant soil erosion in and around the assessment area and subsequently prevent any significant contamination of the Dwarsspruit. • It is further recommended that small temporary stormwater cut-off berms/trenches be constructed directly adjacent around the upstream sides of the proposed layer house site no 8 and evaporation ponds site no 8 construction footprints. These cut-off berms/trenches must assist with clean/dirty water separation during the construction phase, by diverting and channelling clean surface water runoff from the south, around the construction footprints, towards the Dwarsspruit. • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is	Construction Contractor	**Monitoring Action:** ECO to take photographs of site before clearance; ECO Audit Checklist. **Responsible Person/Party:** ECO **Monitoring Frequency:** Monthly	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone. • It is further recommended that the continued mechanical/manual vegetation clearance and maintenance of the area situated directly to the south of the Dwarsspruit and associated with the relevant Critical Biodiversity Area two (CBA 2), should be permanently ceased, with immediate effect. The area should be adequately re-vegetated and rehabilitated, as soon as practicably possible. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist. • Disturbed areas within and immediately surrounding the proposed development footprint area, must be adequately rehabilitated as soon as practicably possible after construction.			
7.12	**Aspects:** Contamination/eutrophication of the Dwarsspruit by wash water from the layer house site no 8 wash-out process, within the associated local and broader quaternary surface water catchment- and drainage area **Impact:** Contamination/eutrophication of the Dwarsspruit by wash water from the layer house site no 8 wash-out process, within the associated local and broader quaternary surface water catchment- and drainage area. **Objective:** Prevent Contamination/eutrophication of the Dwarsspruit. **Target:** No record of Contamination/eutrophication of the Dwarsspruit **Mitigation/Management Measures:** • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone.	Construction Contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:** DEO & ECO **Monitoring Frequency:** Monthly	

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• It is further recommended that the continued mechanical/manual vegetation clearance and maintenance of the area situated directly to the south of the Dwarsspruit and associated with the relevant Critical Biodiversity Area two (CBA 2), should be permanently ceased, with immediate effect. The area should be adequately re-vegetated and rehabilitated, as soon as practicably possible. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist. • It is recommended that all individuals of the identified alien invasive species must be actively eradicated from the Dwarsspruit, in accordance with the National Environmental Management: Biodiversity Act (Act 10 of 2004); Alien and Invasive Species Regulations, 2014. Removed materials must also be adequately disposed of. • Implement an adequate Alien Invasive Species Management Plan during the construction and operational phases. Such a Management Plan must be compiled by a suitably qualified and experienced ecologist. • Disturbed areas within and immediately surrounding the proposed development footprint area, must be adequately rehabilitated as soon as practicably possible after construction			
7.13	**Aspects:** Infiltration of effluent and chemicals that have the potential to change the quality of the groundwater. **Impact:** Infiltration of effluent and chemicals that have the potential to change the quality of the groundwater. **Objective:** Prevent infiltration of effluent and chemicals that have the potential to change the quality of the groundwater. **Target:** No infiltration of effluent and chemicals that have the potential to change the quality of the groundwater.	Construction Contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:**	
	Mitigation/Management Measures: • The facility should be kept clean and tidy at all times. • Any waste generated should be disposed of accordingly in registered waste (landfill) sites and not dumped on site or the surrounding area.			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• All surfaces that are associated with waste should have impermeable surfaces. • Stormwater and runoff should be diverted and managed to not come in contact with any waste generated on site. • All evaporation ponds and septic tanks associated with the facility should be lined with a synthetic liner or any other liner approved by the Department of Water and Sanitation (DWS) to ensure that any possible leachate from the evaporation ponds and septic tanks do not pollute the groundwater. • Due to the presence of possible intrusive dolerite/ magnetic features, the proposed facility should have at least two (2) monitoring boreholes, one (1) upstream from the facility and the other downstream of the facility, on site to monitor that leakage from the evaporation ponds and septic tanks do not occur. The groundwater quality should be assessed bi-annually during the operation of the evaporation ponds.		Monthly	
7.14	**Aspects:** Health and Safety. **Impact:** Dangerous working conditions for workers. **Objective:** To prevent any casualties on site. **Target:** No Personnel casualties on site.	Construction Contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:** Contractor Health and Safety Representative	
	Mitigation/Management Measures: • Ensure that PPE is available to Personnel; • Adhere to the Occupational Health and Safety Act; • Keep the first aid kit stocked; • Issue all workers with necessary health and safety items; • Potentially hazardous areas must be demarcated with danger tape;			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• Appropriate signage must be placed to caution employees and contractors not to enter certain structures without authorisation; • Regular safety inspections must be conducted to ensure that participants are equipped with necessary safety equipment; and, • All construction personnel to wear hard hats and reflector jackets at all times.		**Monitoring Frequency:** Monthly	
7.15	**Aspects:** Heritage Resources. **Impact:** Damage and destruction of vertebrate fossils during excavation activities. **Objective:** To prevent any destruction of valuable artefacts. **Target:** No destruction of any vertebrate fossils and artefacts.	Construction Contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:** DEO & ECO **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: • Should any heritage resources (including but not limited to fossil bones, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts or bone remains, structures and other built features, rock art and rock engravings) be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped. A trained palaeontologist or heritage specialist must be notified to assess the finds, and this must then be reported to the applicable heritage authority; • Heritage remains uncovered or disturbed during earthworks must not be disturbed further until the necessary approval has been obtained from the heritage authority. A registered heritage specialist must be called to the site for inspection and removal once authority to do so, has been given; • Excavations must be limited to the footprint area and be maintained in a narrow corridor;			

CONSTRUCTION PHASE: PROPOSED EXPANSION OF CHICKEN HOUSES FROM APPROXIMATELY 30 000 TO 60 000 CHICKENS, BULHOEK FARM, NEAR SWARTRUGGENS, NORTHWEST PROVINCE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT? (for use by ECO)
	• All operations of excavation equipment must be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures must be followed: • All construction in the immediate 50m vicinity radius of the site must cease; • The heritage practitioner must be informed as soon as possible; • In the event of obvious human remains SAPS must be notified; • Mitigation measures (such as refilling, etc.) must not be attempted; • The area in a 50m radius of the find must be cordoned off with hazard tape; and, • Public access must be limited and the area must be placed under guard.			

9.2 Operational Phase Environmental Management Programme

The intention of providing an EMPr for the operational phase is to provide guidelines for management of facilities and infrastructure to safeguard the environment against negative environmental impacts.

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		**RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)**	**MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY**	**COMPLIANT ? (for use by ECO)**
1. **ACTIVITY:** OPERATIONAL PHASE IMPACTS				
1.1	**Aspects:** Surface and groundwater contamination from the Evaporation Ponds and Septic tanks.. **Impact:** Surface and groundwater contamination from the Evaporation Ponds and Septic tanks.. **Objective:** To avoid Surface and groundwater contamination from the Evaporation Ponds and Septic tanks. **Target:** Minimise the incidence of Surface and groundwater contamination from the Evaporation Ponds and Septic tanks..	Applicant	**Monitoring Action:** Applicant to adhere to business hours. **Responsible Person/Party:** Applicant	
	Mitigation/Management Measures: • The facility should be kept clean and tidy at all times; • Any waste generated should be disposed of accordingly in registered waste (landfill) sites and not dumped on site or the surrounding area; • All surfaces that are associated with waste and manure should have impermeable surfaces; • Stormwater and runoff should be diverted and managed to not come in contact with any waste generated on site; • Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. This is to prevent any litter, rubble, or possible pollution to enter the watercourses downstream of the site and the surrounding environment in general;			

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
• Water drainage should be properly planned and addressed to drain water from the site and prevent any accumulation on site; • Provision of adequate on-site sewerage management; • Groundwater from BULBH2 should be treated chemically prior to be used for human consumption; • Groundwater from BULBH3 should be treated for the total hardness of the water prior to utilisation to protect groundwater pumping equipment etc.; • Appoint a qualified Geohydrologist to monitor groundwater quality, this should be implemented throughout the lifespan on the activity. The quality analysis should be done bi-annually during the operational phase of the evaporation ponds; • Sewerage and sanitation facilities should be regularly maintained and checked; • The septic tanks and evaporation ponds should be lined with a synthetic liner or any other liner that has been approved by the DWS to ensure that no potential leachate pollutes the groundwater; • Due to the presence of possible intrusive dolerite/ magnetic features, the septic tanks should be serviced at least weekly. • The facility should have at least two (2) monitoring boreholes, one (1) upstream from the facility and the other downstream of the facility, on site to monitor that leakage from the septic tanks and evaporation ponds do not occur. • A leak monitoring device is advised for each septic tank on site to ensure that any leakages are detected early enough to mitigate. • The principle of reduce, re-use and recycle should be followed; • Avoid the use of concrete lined channels for storm water management as this can increase the speed of water. This in turn increases erosion potential that can cause erosion on site and in channels and increase siltation downstream. If concrete-lined channels are used; they should end in silt traps;			

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	• Regular inspections will be undertaken of any access roads and stormwater management drains for signs of erosion and sedimentation; • Regularly inspect all vehicles for leaks. Re-fuelling of vehicles must take place on a sealed surface area surrounded by berms to prevent ingress of hydrocarbons into the ground.			
1.2	**Aspects:** Increased risk of veld fires due to the undertaking of maintenance and hot works. **Impact:** Due to maintenance hot works that may need to be conducted on the proposed mast, fires can occur if not managed to the correct standard. **Objective:** Ensure no loss of resources due to fires. **Target:** Ensure adequate fire-fighting equipment is in place and no fires within natural areas.	Applicant	**Monitoring Action:** Maintenance Contractor Checklist **Responsible Person/Party:** DEO **Monitoring Frequency:** Once maintenance activities are conducted.	

	Mitigation/Management Measures:
	• Ensure that the area where maintenance hot work is conducted is equipped with adequate firefighting equipment. This includes at least a fire extinguisher of the appropriate type irrespective of the site;
	• Maintenance personnel must be adequately trained in the handling of firefighting equipment, and can include but is not limited to:
	  ○ Regular fire prevention talks and drills;
	  ○ Posting of regular reminders to staff;
	• Do not store any flammable materials anywhere near where the hot works are to be undertaken;
	• In the event of a fire, the maintenance Contractor shall immediately employ such plant and personnel as is at his disposal and take all necessary action to prevent the spread of the fire and bring the fire under control; and,
	• Hot works must be restricted to an area approved by the landowner as well as the maintenance contractor.			

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
1.3	**Aspects:** Over-extraction of groundwater from the three boreholes **Impact:** Over-extraction of groundwater from the three boreholes **Objective:** Ensure no over-extraction of groundwater from the three boreholes **Target:** No over-extraction of groundwater from the three boreholes.	Applicant	**Monitoring Action:** Regular inspection. **Responsible Person/Party:** ESA **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: • The safe yields as mentioned in the Borehole Yield Test report must be strictly adhered to. • Only the allotted water quantities as per the approved Water Use License are to be extracted. • Flow meters must be installed in order to enable monitoring and management of water consumption. • Water consumption figures must be submitted to the Department of Water and Sanitation (DWS) on a regular basis in order to ensure compliance with the allotted water quantities, as per the approved Water Use License. • Water saving initiatives must be implemented for the operations of the poultry farm. • Environmentally responsible water use practices and activities must be adopted for the operations of the poultry farm. • Provide training interventions for the operational staff of the poultry farm, on correct environmentally responsible water use practices and activities for the operations of the poultry farm			
1.4	**Aspects:** Infestation of the area with alien and invasive species **Impact:** Infestation of the area with alien and invasive species. **Objective:** Control the_ Infestation of the area with alien and invasive species. **Target:** No Infestation of the area with alien and invasive species.	Applicant	**Monitoring Action:** ICNIRP readings	

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	Mitigation/Management Measures: • It is recommended that an alien invasive species management plan be compiled and implemented for the operational phase of the development to ensure that all alien invasive plant species are removed, and their spread is controlled.		**Responsible Person/Party:** Applicant **Monitoring Frequency:** Annual	
1.5	**Aspects:** Handling Of Layer Chickens, Culling and Vaccinations. **Impact:** The handling of layer chickens on the proposed chicken farm is of uttermost importance to ensure that unnecessary injuries and illnesses to the chickens do not occur. **Objective:** Ensure that no chickens contract diseases. **Target:** Ensure that no chickens contract diseases.	Applicant	**Monitoring Action:** Complaints Register **Responsible Person/Party:** Applicant **Monitoring Frequency:** Bi-annually	
	Mitigation/Management Measures: • Make use of the necessary VCD's as well as the SAPA code of practice; • Hens should always have ad lib feed; • Ensure the correct number of birds are culled; • Only catch one hen at a time and catch both legs; • Never carry more than 2 birds in one hand; • When finished culling for the day, ensure all mortalities and eggs are removed from cages; • Always cull from the pyramid the furthest from the auger motor;			

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	• Trained staff must make use of the appropriate euthanasia procedures when necessary; • Vaccinate early in the morning; • Use suitable borehole water (cool water) or distilled water (no chlorinated water to be used); • The vaccine may not get into contact with metal; • Do not mix vaccine in direct sunlight; • Use pH neutralizer such as chlorex blue or aviblue (10 minutes prior to vaccination); • Once the vaccine has been mixed, it is active for only 45 minutes; • Ensure that all the hens get the same amount of exposure to vaccine; • Control the ventilation so that there won't be any drag; • The vaccination program must be updated after vaccinating; • Don't spray birds on cold days ; • Bayticol and Carbadust are good products for fighting lice; and, • Control ventilation.			
1.6	**Aspects:** Biosecurity measures and pest & rodent control.. **Impact:** When Biosecurity measures are not up to standard famine an illness can occur on site; for a chicken layer farm this would be a detrimental impact if not managed correctly **Objective:** Ensure that no chickens contract diseases. **Target:** Ensure that no chickens contract diseases.	Applicant	**Monitoring Action:** Complaints Register **Responsible Person/Party:** Applicant	
	Mitigation/Management Measures: • All visitors must sign the visitors' book; • Don't go from old flocks to young flocks or disease suspected flocks to healthy flocks;			

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)

• Maintenance must disinfect tools used at other farms;
• Only egg and feed trucks allowed on site;
• No poultry products from other farms allowed on the farm;
• Cull and POL (Point of Lay) workers may not mix;
• Only accept clean packaging material;
• No wild birds allowing in the sheds; make sure the sheds are bird proof;
• Make use of the correct PPE;
• Foot baths must be replaced when necessary and used when entering and exiting the sheds;
• No personal clothes are allowed on site;
• Always change clothes when entering or exiting the site;
• Changing rooms must be kept neat and tidy;
• Always ensure correct number of hens per cage;
• The following rodent mitigation measures may be implemented:
  ○ Grain bait in bait stations;
  ○ Tracking powder;
  ○ Liquid bait, mix with pine nut cool drink or sweet wine;
  ○ Kill the rats at night;
  ○ Cats (may spread disease); and,
  ○ Poison gel painted where rats run over (dust problem).
• Fly control via the following treatments of adult flies:
  ○ Agita scatter bait which is scattered in problem areas approximately 200gr/100 m2.
  ○ Agita paint-on which is mixed according to the directions and are painted on boards located in problem areas.
		Monitoring Frequency:
		Bi-annually	

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	○ Ectomin or Fendona which is mixed in a tank and sprayed where necessary, usually around the egg room. ○ Larvadex which is mixed in the feed at 500g per ton. ○ Neporex which is used as a spray, or which is scattered on manure (used for larvae found in the manure). • Fly Management via: ○ Rotation of Insecticides: This method involves alternating of the insecticides based on chemical composition, not brand, in order to combat the possibility of the flies becoming resistant to a specific insecticide. ○ Improve Sanitation: The new houses will be operated on an automated system; thus removal of eggs and manure will be removed daily using a conveyor belt. Cracked eggs will be separated and stored temporarily in a dedicated enclosed area prior to being discarded. Manure will be removed three (3) times per week through the conveyor system and loaded straight into an enclosed truck. By collecting the manure in this manner and within the specified time frame, flies do not have time to hatch and cause sanitary issues. In cases where there is a need to temporarily store the manure, Quantum Foods will have a temporary storage facility which will be an enclosed structure, protected from rain or heat exposure which will exacerbate the issue of fly infestation and odour. ○ Monitoring of Flies: The bait method will be used in addition to the insecticides to identify the main source of attraction of flies on site and which strain is prevalent in order to ensure use of the appropriate insecticides. ○ Ensure that all dead rats are collected on a daily basis and recorded on the control sheet. These bait stations to be cleaned and inspected on a weekly basis. The bait should always be clean and dust free.			
1.7	**Aspects:** socio economic conditions **Impact:** During the operational phase of the proposed development will create employment opportunities for individuals from the Local Community **Objective:** create employment opportunities for individuals from the Local Community	Applicant	**Monitoring Action:** Complaints Register	

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	Target: employment opportunities for individuals from the Local Community **Mitigation/Management Measures:** • Mitigation measures are not applicable as the impact is positive.		**Responsible Person/Party:** Applicant **Monitoring Frequency:** Bi-annually	
1.8	**Aspects:** Occupational Health and Safety... **Impact:** During the operation phase, accidents, occupational diseases, ill health and damage to property can occur if pre-cautionary measures are not taken. **Objective:** Ensure no Health and Safety Incidents **Target:** no Health and Safety Incidents **Mitigation/Management Measures:** • Ensure that PPE is available to Personnel; • Adhere to the Occupational Health and Safety Act; • Keep the first aid kit stocked; • Issue all workers with necessary health and safety items; • Potentially hazardous areas must be demarcated with danger tape; • Appropriate signage must be placed to caution employees and contractors not to enter certain structures without authorisation; • Regular safety inspections must be conducted to ensure that participants are equipped with necessary safety equipment; and,	Applicant	**Monitoring Action:** Complaints Register **Responsible Person/Party:** Applicant **Monitoring Frequency:** Bi-annually	

OPERATIONAL PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	• All personnel to wear hard hats and reflector jackets at all times.			
1.9	**Aspects:** Noise nuisance **Impact** Noise nuisance generated by site operations, the presence of loading trucks for egg collection. **Objective:** Minimise noise nusiance. **Target:** No record of noise nusiance.	Applicant	**Monitoring Action:** Complaints Register **Responsible Person/Party:** Applicant **Monitoring Frequency:** Bi-annually	
	Mitigation/Management Measures: o Limit working hours of noisy equipment to daylight hours; o Ensure that employees and maintenance staff conduct themselves in an acceptable manner while on site, both during work hours and after hours; o Trucks must drive slowly through facility and should have automatic gearboxes that are generally less noisy than trucks with manual gears. Trucks must go much slower over speed bumps (10 km/hour) through town, where applicable			

9.3 Impacts during the Decommissioning Phase

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
1. ACTIVITY: SITE LAYOUT PLANNING				
1.1	**Aspects:** Site Layout Plan. **Impact:** Negative impact on the environment of unmanaged and unplanned placement of infrastructure. **Objective:** To ensure acceptable impact and management of environmental issues at the main site and storage site during construction by proper planning of layout of infrastructure placement. **Target:** All areas not demarcated for construction must remain vegetated and the impact must be minimised.	Contractor	**Monitoring Action:** Records of the Site Layout must be present on site. **Responsible Person/Party:** Contract Project Manager / Engineer **Monitoring Frequency:** Once off	
	Mitigation/Management Measures: a. Draw up and submit for approval a Site Layout Master Plan. This plan must show the final positions and extent of all permanent and temporary site structures and infrastructure (inclusive of the distance from any sensitive environmental areas); b. The planning for layout must be done in consultation, on-site, with the Environmental Control Officer (ECO); c. The contractor may not deface, paint, damage or mark any natural features situated in or around the site for survey or other purposes; d. The contractor must ensure that all construction personnel, labourers and equipment remain within the demarcated construction sites at all times; e. No servicing of vehicles may be permitted on site, unless for emergency purposes; f. Stockpiles may not be situated in such a manner that they obstruct pathways; g. Location of storage area must take into account prevailing winds, distance to water bodies and general on-site topography; h. Place infrastructure as far as possible on sites that have already been transformed;			

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	i. Facilities may not be used as staff accommodation; j. The Contractors camp layout must take into account availability of access for deliveries and services and any future works; k. The Contractors camp must be of sufficient size to accommodate the needs of all sub-contractors that may work on the project; and, l. The Contractor must implement the following as required: 1. Suitable sanitation facilities, adequate for the number of staff on site (1 for every 15 personnel and 1 for each gender); and, 2. Facilities for solid waste collection.			
2. **ACTIVITY:** DECONSTRUCTION PROGRAMME / SCHEDULE				
2.1	**Aspects:** Project Management. **Impact:** Order and timing of construction activities and associated impacts. **Objective:** To Provide a clear indication of the order by which key construction activities will transpire. **Target:** Anticipate timing of impacts to coordinate the availability of any specialists and/or authorities who may be required to conduct site inspections.	All Decommissioning Parties	**Monitoring Action:** Meetings; Risk Register; ECO Audit Checklist; Photographs **Responsible Person/Party:** Contract Project	
	Mitigation/Management Measures: a. Draw up and sign off a project schedule with all contributing parties and service providers to commit to a timeline during which time construction milestones will be completed;			

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	b. Communicate any deviation from this schedule to all parties, so as to provide parties with sufficient opportunity for alternative arrangements to be made; c. Establish a risk register to identify and monitor potential factors which may result in setbacks/ delays on tasks within the project schedule; d. Hold management meetings with representatives of the project manager, contractor, engineer and other contributing parties to monitor and anticipate changes; and, e. Should circumstances/incidents arise which may pose a risk to the project schedule, the construction contractor, and engineer and ECO are to keep records of this and the latter communicate this in the ECO Monthly Audit Checklist.		Manager/Contractor /ECO **Monitoring Frequency:** Once off	
3. **ACTIVITY:** COMMUNICATION WITH LAND OWNERS				
3.1	**Aspects:** Landowner Consent. **Impact:** Disturbance of existing land use. **Objective:** Maintain a conflict-free relationship with landowners / users. **Target:** No complaints received from landowners / users of affected property.	Contract Project Manager / Contractor & Applicant	**Monitoring Action:** Meetings; Risk Register.	

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	Mitigation/Management Measures: a. Landowners are to be aware and in agreement of site access arrangements; b. Landowner has to provide consent to the site supervisor of the construction contractor prior to entering the construction footprint area for safety purposes; c. All property gates are to be kept closed when not in use (or kept in the open/closed state in which it was found); and, d. Any complaint or liaison with regard to environmental aspects, compensation or disorder to economic activities, must not be addressed by the contractor. A public complaint register must be kept on site and the contract project manager must inform the Developer and/or ECO to take further action.		**Responsible Person/Party:** Contract Project Manager/Contractor /ECO **Monitoring Frequency:** Monthly	
4. **ACTIVITY:** SITE ESTABLISHMENT				
4.1	**Aspects:** Demarcation of the site and vegetation removal. **Impact:** Direct impact on vegetation during construction and loss of species. **Objective:** Prevent unnecessary habitat destruction. **Target:** All areas not demarcated for construction must remain vegetated.	Decommissioning Contractor	**Monitoring Action:** ECO to take photographs of site before clearance; ECO Audit Checklist. **Responsible Person/Party:** ECO	
	Mitigation/Management Measures: • .Abnormal loads must be timed to avoid times of year when traffic volumes are likely to be higher, as would All disturbed and compacted soils need to be ripped, re-profiled and reseeded and/or replanted with indigenous species; • Areas to be cleared should be agreed and demarcated before the start of the clearing operations; • Stabilise all erosion features on site;			

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	• No personnel are allowed to collect, harvest or destroy any species of flora or fauna on or off the site, unless specifically earmarked for removal; • Stormwater management should maintain the natural flow regime as far as possible; • Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. This is to prevent any litter, rubble or possible pollution to enter the watercourses downstream of the site and the surrounding environment in general; • Maintain the buffer around the Dwarsspruit river as indicated in the Aquatic Biodiversity Impact Assessment. • No open fires are allowed on site during the construction. • Smoking must be restricted to designated smoking areas. • The proposed development must remain outside of the delineated watercourses buffer as per the Aquatic Biodiversity Assessment. • Development and access roads should be restricted to already disturbed areas as far as practically possible. • Vehicles used during the construction, operational, and decommissioning phase must be restricted to designated roads. • Should any threatened species be observed on the development footprint, the species must be relocated in consultation with a faunal specialist. • All emergency numbers for human-wildlife conflict events must be located at the farm offices. • At least one construction personnel must a trained snake handler (for example, the Designated Environmental Officer).		**Monitoring** **Frequency:** Monthly	

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	• All personnel, during all phases of the construction and operation works, must be inducted to ensure that they are aware of the environmental sensitivities on the site. • Areas disturbed outside of the footprint must be rehabilitated effectively. • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone. • All management outcomes included in the Avifaunal Compliance Statement must be adhered to. • Topsoil must be retained and stockpiled for the purposes of rehabilitation.			
4.2	**Aspects:** Topsoil stripping and conservation. **Impact:** Destruction of topsoil. **Objective:** Conserve and protect topsoil from erosion and destruction. **Target:** Topsoil condition maintained.	Decommissioning Contractor	**Monitoring Action:** ECO Audit Checklist; Photographs; **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: Mitigation/Management Measures: • Remove topsoil approximately 300mm deep from establishment area and stockpile areas; • Topsoil stockpiles to be kept free from weeds; • Construction should take place during the low flow months (winter), as much as possible in order to minimise the risk to the hydrology of the system and to prevent excessive sediment and debris being washed downstream;			

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	• Correct site reinstatement and landscaping following any disturbances will abate channel and gulley formation; • Disturbed areas, that will not form part of the operational footprint, but which were disturbed as part of the construction activities, should be rehabilitated and re-vegetated using site-appropriate indigenous vegetation and/or seed mixes; • Sheet runoff from cleared areas, paved surfaces and access roads needs to be curtailed; • Topsoil stockpiles to be placed on a levelled area and measures to be implemented to safeguard the piles from being washed away in the event of heavy rain/storm water; • Topsoil need to be stored on designated areas only. This need to be planned and indicated in the site-layout plan; • Ensure that topsoil is not mixed with subsoil and/or any other excavated material; • Provide containment and settlement facilities for effluents from concrete mixing and washing facilities; • Temporarily stored topsoil must be re-applied within 6 months, topsoil stored for longer need to be managed according to a detailed topsoil management plan; • Provide spill containment facilities for hazardous materials like fuel and oil; • Place containers of hazardous materials like fossil fuels and oil in designated areas (near existing buildings) and ensure that the entire surface is temporarily cemented and provided with low retaining walls right around the designated areas, flat drip trays can also be used, since they are movable; • Topsoil must be used in all rehabilitation activities and may not be compacted to ensure that its plant support capacity remain of high quality;			

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	• Rehabilitate denude areas especially slopes with appropriate species and erosion protection measures i.e. geotextiles, rocks, topsoil mixtures as per specifications; • Stabilise and revegetate all areas bare of vegetation as soon as possible; • Monitor the entire site for signs of erosion throughout the construction and operational phases of the project; • All erosion features must be rehabilitated as soon as possible; • Implement erosion control measures where necessary; • Implement suitable erosion prevention measures during the operation, construction and decommissioning phase. • Make use of surface erosion measures within disturbed areas to avoid erosion in times of high risk (e.g. rain season and time of high wind speeds); • Stormwater management along any roadways and paths to reduce gulley erosion formation; • Stormwater management should prevent excessive sediment to be carried into the watercourses; • Soil disturbance must be kept to a minimum within and around the development footprint.			
5. **ACTIVITY:** DECOMMISSIONING SITE OPERATIONS				
5.1	**Aspects:** Surface and groundwater contamination due to decommissioning activities such as the use of hazardous materials on **Impact:** Surface and groundwater contamination due to decommissioning activities such as the use of hazardous materials on.	Decommissioning Contractor	**Monitoring Action:** Photographs; ECO	

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Objective: Prevent surface and groundwater contamination due to decommissioning activities such as the use of hazardous materials on. **Target:** no incidents of surface and groundwater contamination due to decommissioning activities such as the use of hazardous materials on.		Audit Checklist; Incident register **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
Mitigation/Management Measures: • Material Safety Data Sheets (MSDSs) must be available on site for all chemicals and hazardous substances to be used on-site, including information on their ecological impacts and how to minimise the impacts in case of leakage; • All spillage must be cleaned up immediately after they have occurred; • Spillage of petrochemical products must be avoided. In the case of accidental spillage, contaminated soil must be removed for bio-remediation or disposed of at a facility for the substance concerned. Disturbed land must be rehabilitated and seeded with vegetation seed naturally occurring on site; • Do not locate any ablution facilities, sanitary convenience, septic tank or French drain within the 1:100-year flood line, or within a horizontal distance of 100m (whichever is greater) of a watercourse or drainage line; • Vehicles and machinery must be regularly serviced to avoid leakages; • At the work site the contractor must maintain strict surveillance to ensure that no spills occur; • No water courses may be used to clean equipment, or for bathing. All cleaning operations must take place off site at a location where wastewater can be disposed of correctly; • The discharge of any pollutants such as cement, concrete, lime, chemicals, etc. into the natural environment and the storm water system must strictly be prohibited;			

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	• Fuel and chemical storage must be done within a designated area only, which is properly bund and able to contain 110% of the capacity of fuel or chemicals stored within;
	• Construction vehicles must be inspected every morning before work commence to ensure that no leakages do occur;
	• All personnel must receive induction on how to report spillages, contain them and treat them accordingly;
	• Spill kits must be available at each working station;
	• Drip trays must be placed beneath all construction equipment that are stationary on site or within the site camp; and,
	  • Hazardous waste must be stored in bins with a lid in a demarcated waste area and must be disposed of at a hazardous treatment facility with records on file.
	  • Any waste generated should be disposed of accordingly in registered waste (landfill) sites and not dumped on site or the surrounding area;
	  • Regularly inspect all vehicles for leaks. Re-fuelling of vehicles must take place on a sealed surface area surrounded by berms to prevent ingress of hydrocarbons into topsoil;
	  • If any spills occur, they should be immediately cleaned up;			

5.2	**Aspects:** Handling of general waste materials on the decommissioning site **Impact:** The presence of personnel and decommissioning operations on site will increase the likelihood of littering and the dumping of solid waste. **Objective:** No littering and the dumping of solid waste **Target:** No littering and the dumping of solid waste	Decommissioning Contractor	**Monitoring Action:** Photographs; ECO Audit Checklist	

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE	RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
Mitigation/Management Measures: • An adequate number of scavenger proof litter bins are to be placed throughout the site. Two (2) waste bins at least must be present, one (1) for hazardous waste and one (1) for non-hazardous waste at each working site. Dumping of waste on site is prohibited; • Waste sorting and separation must form part of the environmental induction and awareness programme, to encourage personnel to collect wastepaper, glass and metal waste separately; • Keep all work sites including storage areas, offices and workshops neat and tidy; • Dedicate a demarcated and signposted storage area on site for the collection of construction waste; • All domestic waste is to be removed from site and disposed of at a registered solid waste landfill site as mentioned in the Basic Assessment Report; • Care must be taken to ensure that no waste fall off disposal vehicles on-route to the landfill. If needed, a tarpaulin can be utilised; • The burning or burying of solid waste on site is prohibited. Do not burn PVC pipes or other plastic materials, as this is regarded as hazardous waste; • Littering by construction workers shall not be permitted; • General refuse/rubbish shall be removed from site on a weekly basis to an approved registered landfill site or as soon as the waste bins are reaching full capacity; • Minimise waste by sorting wastes into recyclable and non-recyclable waste; • Ablution facilities must be serviced by a registered service provider, cleaned at least once a week, and safe disposal slips must be on file at the site office;		**Responsible Person/Party:** Contractor & DEO **Monitoring Frequency:** Monthly	

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	• A bi-weekly (twice a week) litter patrol of the entire site shall be conducted by the designated Environmental Site Agent (ESA); • Hazardous waste must be sorted from non-hazardous waste and disposed of at a hazardous treatment facility, records and proof of disposal must be kept; and, • A register must be kept of the quantities of waste disposed and proof of disposal must be available at the site office. • The facility should be kept clean and tidy at all times; • Any waste generated should be disposed of accordingly in registered waste (landfill) sites and not dumped on site or the surrounding area; • All surfaces that are associated with waste and manure should have impermeable surfaces; • Proper waste management during all phases of the activity, as well as storm water management, will have to be strictly enforced and monitored. This is to prevent any litter, rubble, or possible pollution to enter the watercourses downstream of the site and the surrounding environment in general;			
5.3	**Aspects:** Increased risk of veld fires. **Impact:** Due to the presence of construction personnel in natural areas, fires can occur if not managed to the correct standard. Fire may occur due to the presence and use of hazardous and flammable materials on site. **Objective:** Minimise risk of veld fires. **Target:** No Veld fires.	Decommissioning Contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:**	
	Mitigation/Management Measures:			

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	• The Contractor shall take all reasonable and precautionary steps to ensure that fires are not started as a consequence of the activities on site; • Ensure the work site and the contractor's camp is equipped with adequate firefighting equipment. This includes at least rubber beaters when working in veldt areas, and at least one fire extinguisher of the appropriate type irrespective of the site; • Workers must be adequately trained in the handling of firefighting equipment, and can include but not limited to: o Regular fire prevention talks and drills; and, o Posting of regular reminders to staff. • No open fires are permitted anywhere on site; • Do not store any fuel or chemicals under trees; • Place containers of hazardous materials like fossil fuels and oil in designated areas (near existing buildings) and ensure that the entire surface is temporarily cemented and provided with low retaining walls right around the designated areas, flat drip trays can also be used, since they are movable; • Ensure that a good fire break around these designated areas for hazardous materials and around the footprint of the proposed project by removing grass with a scraper; • Do not store gas and liquid fuel in the same storage area (Hazardous substances to be stored in accordance with SANS); • Any fires that occur on site shall be reported to the ECO immediately and then to the relevant Authorities;		DEO & ECO **Monitoring Frequency:** Monthly	

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	• In the event of a fire, the Contractor shall immediately employ such plant and personnel as is at his disposal and take all necessary action to prevent the spread of the fire and bring it under control; • Do not permit any smoking within 3 m of any fuel or chemical storage area, or refuelling area. A designated smoking area must be established on site; and, • All construction vehicles must be fitted with at least one fire extinguisher.			
5.4	**Aspects:** Traffic. **Impact:** Traffic impacts associated with the movement of construction vehicles on site. **Objective:** To minimise the destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site. **Target:** Minimal destruction of biodiversity, compaction of valuable topsoil and mortalities of fauna on site. **Mitigation/Management Measures:** • During construction create designated turning areas and strictly prohibit any off-road driving or parking of vehicles and machinery outside designated areas; • Abnormal loads and machinery must avoid movement over gravel roads during and immediately after rainfall events, so as to limit destruction of road surfaces and sedimentation of downhill rivers/streams; • All vehicles must be road-worthy, be maintained to prevent fuel or oil leaks and drivers are to be licensed appropriately for the driving of their assigned vehicle. Drivers responsible for the transportation of personnel must be specifically licensed to do so; • Construction vehicles may not leave the designated roads and tracks, whilst U-Turns are prohibited on all roads; • Signage is to be placed on vehicles at all times;	Decommissioning Contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:** Contractor, DEO & ECO **Monitoring Frequency:** Monthly	

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	• All construction vehicles must adhere to construction sites and avoid off road to minimise impact on vegetation and soil; • After decommissioning, if access roads or portions thereof will not be of further use to the landowner, remove all foreign material and rip area to facilitate the establishment of vegetation, followed by a suitable revegetation program; • Construction-related vehicles and machinery may not operate on site without reflective safety signage, car-top lights and reflective personnel gear and, • Drivers of construction vehicles are to adhere to a 30km/h speed limit on site and need to be watchful for farm workers or children in the vicinity.			
6.5	**Aspects:** Dust nuisance generated by the operation of machinery and vehicles. **Impact:** The decommissioning activities of the proposed project could potentially result in fugitive dust emissions.. **Objective:** Prevent Dust nuisance. **Target:** No records of dust nuisance	Decommissioning Contractor	**Monitoring Action:** Incident Register; Photographs; ECO Audit Checklist **Responsible Person/Party:** Contractor **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: • Implement suitable dust management and prevention measures during the decommissioning phase; • Ensure all vehicles remain on designated roads and avoid the opening of detour or by-pass tracks; • Vehicles delivering or removing soil must be covered to reduce spills and windblown dust; • Any complaints received by the Contractor regarding dust will be recorded and communicated to the ECO; • Obtain a permanent tanker throughout the construction period to have access to “wet” roads when necessary; and, • Areas around the proposed project footprint must be adequately rehabilitated to prevent significant dust emissions.			

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
5.6	**Aspects:** Disturbance of-/damage to aquatic and semi-aquatic faunal habitats, associated with the Dwarsspruit as a result of decommissioning activities. **Impact:** Disturbance of-/damage to aquatic and semi-aquatic faunal habitats, associated with the Dwarsspruit **Objective:** No disturbance of-/damage to aquatic and semi-aquatic faunal habitats, associated with the Dwarsspruit. **Target:** No record disturbance of-/damage to aquatic and semi-aquatic faunal habitats, associated with the Dwarsspruit..	Decommissioning Contractor	**Monitoring Action:** ECO Audit Checklist; Safe Disposal Documentation & Photographs **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
	Mitigation/Management Measures: • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area. A minimum approximately 150 m aquatic ecological buffer distance is recommended to be implemented around the main active streamflow channel of the Dwarsspruit. No current or future development is allowed to take place within the buffered zone. • No site decommissioning basecamps may be established within the broader undeveloped landscape surrounding the proposed development footprint.			
5.7	**Aspects:** Terrestrial and aquatic alien invasive species establishment within the Dwarsspruit **Impact:** The proposed decommissioning area could be prone to alien invasive species establishment, due to surface disturbance and vegetation clearance caused by decommissioning activities.. **Objective:** Prevent alien invasive species establishment, due to surface disturbance and vegetation clearance caused by decommissioning activities.. **Target:** No record of alien invasive species establishment, due to surface disturbance and vegetation clearance caused by decommissioning activities.	Decommissioning Contractor	**Monitoring Action:** ECO Audit Checklist; Safe Disposal Slips & Photographic Evidence	

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	Mitigation/Management Measures: • It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed decommissioning footprint area. • It is recommended that all individuals of the identified alien invasive species must be actively eradicated from the Dwarsspruit, in accordance with the National Environmental Management: Biodiversity Act (Act 10 of 2004); Alien and Invasive Species Regulations, 2014. Removed materials must also be adequately disposed of. • Implement an adequate Alien Invasive Species Management Plan during the decommissioning phases. Such a Management Plan must be compiled by a suitably qualified and experienced ecologist.		**Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
5.8	**Aspects:** Impeding and contamination of the flow regime of the Dwarsspruit, within the associated local and broader quaternary surface water catchment- and drainage area **Impact:** Impeding and contamination of the flow regime of the Dwarsspruit, within the associated local and broader quaternary surface water catchment- and drainage area **Objective:** To avoid Impeding and contamination of the flow regime of the Dwarsspruit, within the associated local and broader quaternary surface water catchment- and drainage area **Target:** No records of Impeding and contamination of the flow regime of the Dwarsspruit, within the associated local and broader quaternary surface water catchment- and drainage area	Decommissioning Contractor	**Monitoring Action:** ECO to take photographs of the site; ECO Audit Checklist; Public Complaints Register **Responsible Person/Party:** ECO & DEO	
	Mitigation/Management Measures: • Implement an adequate Stormwater and Erosion Management Plan during the decommissioning phase of the proposed development, to sufficiently manage storm water runoff and clean/dirty water separation on site.			

DECOMMISSIONNG PHASE: PROPOSED DEVELOPMENT OF A TELECOMMUNICATION BASE STATION AND ASSOCIATED INFRASTRUCTURE ON LORRAINE FARM, REMAINDER OF FARM 790, PHILLIPI, WESTERN CAPE		RESPONSIBLE PARTY/PERSON (implementation of mitigation measures)	MONITORING: ACTION, RESPONSIBLE PERSON/PARTY AND FREQUENCY	COMPLIANT ? (for use by ECO)
	• It is recommended that the Dwarsspruit and its associated floodplain and riparian zone be adequately buffered out of the proposed development footprint area.		**Monitoring Frequency:** Monthly	
5.9	**Aspects:** Occupational health and safety **Impact:** During the decomissioning phase, accidents, occupational diseases, ill health and damage to property can occur if pre-cautionary measures are not taken. Increased movement of vehicles may lead to increased accidents among local communities, construction workers and vehicle operators. **Objective:** To avoid unnecessary health and safety incidents. **Target:** Minimise health and safety incidents.	Decommissioning Contractor	**Monitoring Action:** ECO to take photographs of the site; ECO Audit Checklist; Incident register **Responsible Person/Party:** ECO & DEO **Monitoring Frequency:** Monthly	
	• Ensure that PPE is available to personnel; • Adhere to the Occupational Health and Safety Act; • Keep the first aid kit stocked; • Issue all workers with necessary health and safety items; • Potentially hazardous areas must be demarcated with danger tape; • Appropriate signage must be placed to caution employees and contractors not to enter certain structures without authorisation; • Regular safety inspections must be conducted to ensure that participants are equipped with necessary safety equipment; and, • All construction personnel are to wear hard hats and reflector jackets at all times.			
6.15	**Aspects:** Heritage Resources. **Impact:** Damage and destruction of vertebrate fossils during excavation activities.	Decommissioning Contractor	**Monitoring Action:** Incident Register;	

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Objective: To prevent any destruction of valuable artefacts. **Target:** No destruction of any vertebrate fossils and artefacts.		Photographs; ECO Audit Checklist **Responsible Person/Party:** DEO & ECO **Monitoring Frequency:** Monthly	
Mitigation/Management Measures: a. Should any heritage resources (including but not limited to fossil bones, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts or bone remains, structures and other built features, rock art and rock engravings) be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped. A trained palaeontologist or heritage specialist must be notified to assess the finds, and this must then be reported to the applicable heritage authority; b. Heritage remains uncovered or disturbed during earthworks must not be disturbed further until the necessary approval has been obtained from the heritage authority. A registered heritage specialist must be called to the site for inspection and removal once authority to do so, has been given; c. Excavations must be limited to the footprint area and be maintained in a narrow corridor; d. All operations of excavation equipment must be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures must be followed: • All construction in the immediate 50m vicinity radius of the site must cease; • The heritage practitioner must be informed as soon as possible; • In the event of obvious human remains SAPS must be notified; • Mitigation measures (such as refilling, etc.) must not be attempted; • The area in a 50m radius of the find must be cordoned off with hazard tape; e. Public access must be limited and the area must be placed under guard;			

10 EMERGENCY RESPONSE PLAN

The following table is provided to assist the ECO and construction Contractor with remedial work options and problem solving:

Observation or Event	Action by Inspector or Observer	Action by Construction Contractor
Spillage of diesel or hydrocarbons on soil	Report to construction Contractor and continue observations. Also check: ➢ That the source causing the spillage has ceased, and that the affected area is isolated to prevent spreading of the hazardous substance, where after it must be rehabilitated.	Action will be required as soon as possible (ASAP) by following the next steps: ➢ Dig down into the soil to see how far down the pollution penetrated, ➢ If less than 300mm penetrated: a. Turn the soil over to expose it to the air. b. Apply Mono Ammonium Phosphate (MAP) at a rate of 58gr/m² to the overturned soil. c. Water enough to keep the soil moist. ➢ If penetration is greater than 300mm: a. Remove the affected soil and spread in a layer not more than 300mm thick. b. Apply MAP at a rate of 50gr/m². c. Water enough to keep the soil moist. ➢ Repeat the above steps every 6 weeks or until the soil is clean.
Erosion	Report to construction contractor and continue observations. Also check: ➢ That all vehicular movement is restricted to existing access routes to	Action will be required ASAP: ➢ Implement erosion protection works at identified problem areas. ➢ Implement remedial works at affected areas in order to restore the area to its previous or better status.

Observation or Event	Action by Inspector or Observer	Action by Construction Contractor
	prevent crisscrossing of tracks through undisturbed areas.	

11 INCIDENT REGISTER

INCIDENT REGISTER: PROPOSED DEVELOPMENT OF THE LORRAINE FARM MONOPOLE MAST, PHILLIPI, WESTERN CAPE PROVINCE					
NAME OF PERSON REPORTING THE INCIDENT	**INCIDENT**	**DATE OF INCIDENT IDENTIFIED**	**HOW WAS INCIDENT ADDRESSED?**	**DATE OF RECTIFICATION**	**SIGNATURE**

12 REHABILITATION MEASURES AND CLOSURE PLAN

The rehabilitation phase follows completion of construction works and entails site clean-up and site rehabilitation following the removal of the Contractor from site. The underlying aim of rehabilitation is the process of returning land within the site boundary to some degree of its former natural state.

Key aspects within this process include the:

- Removal of structures and infrastructure;
- Handling of inert waste and rubble;
- Handling of hazardous waste and pollution control;
- Final shaping of the terrain;
- Topsoil replacement and soil amelioration;
- Ripping and scarifying of surfaces;
- Planting of indigenous occurring vegetation (if deemed necessary); and
- Maintenance.

12.1 Rehabilitation Measures

Removal of structures and infrastructure
• On completion of a section of works, the area must be rehabilitated by suitable landscaping, levelling, topsoil dressing, land preparation, alien plant eradication and where ascribed for by the ECO, vegetation establishment; • Clear and completely remove from site all construction structures and temporary infrastructure; • All permanent infrastructure must be returned to a useable state.
Inert waste and rubble
• Remove all inert waste and rubble, such as excess rock, any structural foundations and remaining aggregates. Only once this material has been removed, the site shall be re-instated and rehabilitated; • Domestic waste must be completely removed from the site and disposed of at a landfill site.
Topsoil replacement and soil amelioration
• The reinstatement of disturbed areas must follow immediately after the removal of structures and temporary infrastructure; • Topsoil backfilling must be undertaken when the soil is dry, and not following any recent rainfall events; • The replacement of topsoil must be sought in situ with construction where possible, or as soon as construction in an area has be completed; • All stockpiled topsoil together with herbaceous vegetation must be replaced and redistributed over a disturbed area such as temporary access roads; • Topsoil must be returned to the same site from where it was stripped;

• When insufficient topsoil remains, soil of a similar quality can be obtained from a nearby area within the construction area which was disturbed; • Once topsoil has been returned to the ground, stripped vegetation must be randomly spread by hand over the area.
Maintenance
• All re-growth of invasive vegetative material will be monitored by the Developer for one year; • All areas under rehabilitation are to be treated as no-go areas using danger tape and steel droppers/fencing and cornered off, to prevent vehicular, pedestrian and livestock access; • Any re-vegetation must be done using plant species in occurrence on site; • Control invasive plant species and weeds using approved methods of manual or chemical intervention; • The re-establishment of vegetation must be allowed several rainy seasons, given the arid nature of the climate and region.