



Langspruit Landgoed (Pty) Ltd.

Environmental Management Plan

Locality: Standerton

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

9 December 2012

SHANGONI
Management Services (Pty) Ltd



ENVIRONMENTAL MANAGEMENT PLAN

Langspruit Landgoed (Pty) Ltd.

Environmental Management Plan

Locality: Standerton

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

9 December 2012

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PROJECT DETAILS

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

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

Project Title: Expansion of the Langspruit Boerdery Broiler Facilities

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

Compiled by: Ms. Patricia van der Walt

Date: 9 December 2012

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

Technical Reviewer: Mr. Lourens de Villiers



Signature



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1 Introduction

This Environmental Management Plan (EMP) document describes mitigation measures to be implemented for activities that take place on Portion 48 of the farm Diepspruit 414 IS, Mpumalanga.

The EMP is applicable to the entire broiler farm area, to ensure environmental control for all aspects are implemented throughout the farm area. The responsibility for the implementation of this EMP on site rests with the facility manager but must be enforced by Mr. Gert du Preez and the Environmental Control Officer (ECO).

The EMP should also be viewed as a dynamic document. Methods should be updated and improved during implementation, as site conditions become clearer and material or methods improve. The EMP attempts to provide the most practicable methods to promote sound environmental management during the lifespan of the project.

2 Site documentation

The following documentation must be available at the site office at all times:

- A copy of the Basic Assessment Report.
- A copy of the Environmental Management Plan (EMP).
- A copy of the Environmental Authorisation.
- A complaints register.

2.1 Environmental management plan

The environmental management plan (EMP) should be kept on file in the office. The mitigation measures indicated in this Environmental Management Plan must be implemented by all the site workers and contractors.

2.2 Emergency numbers

Emergency numbers (e.g. developer, police, fire department, ambulance, etc.) must be prominently displayed at the site office. Contact details of adjacent landowners or users identified during the basic assessment process should also be kept on file in the office.



2.3 Legislation

2.3.1 Laws of general application

- Constitution of the RSA, 1996 (Act No 108 of 1996)
- National Environmental Management Act, 1998 (Act No 107 of 1998)
- Environment Conservation Act, 1989 (Act No 73 of 1989)
- Promotion of Access to Information Act, 2000 (Act No 2 of 2000)
- Protected Disclosures Act, 2000 (Act No 26 of 2000)

2.3.2 Atmospheric emissions

- Atmospheric Pollution Prevention Act, 1965 (Act No 45 of 1965)
- National Building Regulations and Building Standards Act, 1977 (Act No 103 of 1977)
- Environment Conservation Act, 1989 (Act No 73 of 1989) – Noise Control Regulations in terms of Section 25 of the Environment Conservation Act, 1989
- National Environmental Management Act, 1998 (Act No 107 of 1998)

2.3.3 Water Management

- National Water Act, 1998 (Act No 36 of 1998)

2.3.4 Hazardous Chemicals and Substances

- Hazardous Substances Act, 1973 (Act no. 15 of 1973)
- National Road Traffic Act, 1996 (Act no. 83 of 1986) – GN R225 of 17 March 2000 – National Road Traffic Regulations, 2000
- Occupational Health and Safety Act, 1993 (Act No 85 of 1983) – GN 1179 of 25 August 1995 – Regulations for Hazardous Chemical Substances (HCS)

2.3.5 Waste management

- National Environmental Management: Waste Act (NEMWA) No 59, of 2008
- Environment Conservation Act, 1989 (Act No 73 of 1989)
- National Road Traffic Act, 1996 (Act No 93 of 1996) – GN R225 of 17 March 2000 – National Road Traffic Regulations
- Hazardous Substances Act, 1973 (Act No 15 of 1973)
- Occupational Health and Safety Act, 1993 (Act No 85 of 1993) – GN 1179 of 25 August 1995 – Hazardous Chemical Substance Regulations



2.3.6 Planning of new activities

- Development Facilitation Act, 1995 (Act No 67 of 1995)
- National Environmental Management Act, 1998 (Act No 107 of 1998)

2.3.7 Biodiversity

- National Environmental Management Biodiversity Act, 2004 (Act No 10 of 2004)
- Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983)
- National Veld and forest fire Act, 1998 (Act No 101 of 1998)
- Agricultural Pest Act, 1983 (Act No 36 of 1983) – GN R276 of 5 March 2004
- Fencing Act, 1963 (Act No 31 of 1963)
- National Forest and Fire Laws Amendment Act (Act No 12 of 2001)

2.3.8 Land and Soil Management

- National Environmental Management Act, 1998 (Act No 107 of 1998)
- Environment Conservation Act, 1989 (Act No 73 of 1989)

2.3.9 Heritage resources

- National Heritage Resources Act No 25 of 1999 (Act No 25 of 1999)

2.3.10 Protected areas

- National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003)

Langspruit Landgoed (Pty) Ltd must comply with all other relevant legislation (including the bylaws of the local municipality).



3 ENVIRONMENTAL MANAGEMENT PLAN

Refer to the tables below for the EMP.

3.1 Biophysical environment

3.1.1 Geology

Table 1: Environmental Management Plan – Geology.

| OBJECTIVES | MITIGATION MEASURES |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) Minimise the disturbance of the local geology by following proper planning and construction practices.</p> <p>b) To ensure that the geotechnical features of the site are taken into account in order to prevent any impact on structures to be built.</p> | <p>a) Follow proper construction- and planning practices.</p> <p>b) Working within the design plan.</p> |
| <p>Operational phase</p> <p>a) To reduce the impact on the geology of the site.</p> | <p>a) Alien and invasive vegetation will be eradicated and controlled by manual removal, chemical application and/or biological control. The regulations in terms of the Conservation of Agricultural Resource Act, 1983 apply.</p> <p>b) Re-vegetated areas should be monitored and if necessary, soil conservation measures will be implemented to address any soil erosion that may occur.</p> <p>c) Soil conservation measures should be implemented to address any soil erosion that may occur (Refer to Section 3.1.3 Soil, Table 3 Topsoil preservation).</p> <p>d) The storm water management plan measures (Refer to Section 3.1.6 Surface water, Table 10, Storm water control) shall be inspected on a regular basis in</p> |



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| | <p>order to ensure that the structures function properly and are not causing soil erosion.</p> <p>e) If soil erosion is noted, appropriate remediation measures shall be implemented.</p> |
|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

3.1.2 Topography

Table 2: Environmental Management Plan – Topography.

| OBJECTIVES | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) To ensure that the impact on the topography is limited to the construction phase.</p> | <p>a) Before any construction takes place the proposed area for the expansion will be pegged out. All construction activities will be limited to these areas.</p> <p>b) Reduce the need for stockpiling of material e.g. topsoil removed during the construction operations.</p> <p>c) Limit construction infrastructure required for the operations.</p> |
| <p>Operational phase</p> <p>a) To reduce the impact on the topography of the site.</p> | <p>a) Alien and invasive vegetation will be eradicated and controlled by manual removal, chemical application and/or biological control. The regulations in terms of the Conservation of Agricultural Resource Act, 1983 apply.</p> <p>b) Re-vegetated areas should be monitored and if necessary, soil conservation measures will be implemented to address any soil erosion that may occur.</p> <p>c) The storm water management measures (Refer to 3.1.6 Surface water, Table 10, Storm water control) shall be inspected on a regular basis in order to ensure that the structures function properly and are not causing soil erosion.</p> |



3.1.3 Soil

Table 3: Environmental Management Plan – Topsoil preservation.

| OBJECTIVES | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) Retain topsoil quality by implementing effective soil management practices.</p> | <p>a) Before any construction takes place the proposed area for expansion will be pegged out. All construction activities will be limited to these areas.</p> <p>b) The topsoil layer (top 150mm) of the areas where construction will take place will be removed.</p> <p>c) Removed topsoil will be retained for future landscaping efforts and hence stockpiled in demarcated areas.</p> <p>d) Any sub-soil or rocks removed should also be stockpiled separately and be used during the rehabilitation.</p> <p>e) The depth of the stockpile and the length of time it is stored affect the quality of the soil, thus topsoil needs to be replaced and re-vegetated as soon as possible.</p> <p>f) Topsoil stockpiles shall not exceed 1m in height and 2m in width and shall be protected from wind, erosion and runoff by covering them with a suitable fabric approved by the ECO.</p> <p>a) The contractor is to ensure that all reasonable measures are taken to limit erosion during construction phase. Erosion protection measures include sand bags, cut-off drains and/or berms.</p> <p>b) Cleared indigenous vegetation should be used as a brush pack on topsoil stockpiles for erosion prevention.</p> <p>c) If sterilization of the topsoil during stockpiling has occurred inorganic fertilizers will be used to supplement the soils before seeding of the area takes place.</p> |



Table 4: Environmental Management Plan – Soil erosion.

| OBJECTIVES | MITIGATION MEASURES |
|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) Prevent soil erosion.</p> | <p>a) The contractor is to ensure that all reasonable measures be taken to limit erosion and sedimentation from construction activities. Erosion protection measures include cut-off drains and/or berms.</p> <p>b) Cleared indigenous vegetation can be stockpiled for possible re-use as a brush pack for erosion prevention.</p> <p>c) Should construction in areas that have been stripped not commence within a short period of time, the exposed areas shall be re-vegetated or stabilised. Soil stabilising measures could include rotovating in straw bales (at a rate of 1 bale/20m²), applying mulching or brush packing, or creating windbreaks using brush or bales.</p> <p>d) Once the construction activities have been completed, the remaining disturbed area must be covered with topsoil, sloped and re-vegetated as soon as possible using suitable grass species. This re-vegetation will assist in reducing the potential for erosion.</p> <p>e) If sterilisation of the topsoil during stockpiling has occurred, inorganic fertilizers should be used to supplement the soil before seeding of the area takes place. Compacted soil should be ripped to ensure effective re-vegetation.</p> <p>f) Effective storm water measures will be implemented to minimise soil erosion (Refer to Section 3.1.6 Surface water, Table 10, Storm water Control).</p> |
| <p>Operational phase</p> <p>a) Prevent sheet, rill and gully erosion from potentially impacting infrastructure and roads.</p> | <p>a) Monitoring and remediation of soil erosion shall be undertaken. Compacted soil should be ripped to ensure rapid vegetation establishment.</p> <p>b) Effective storm water measures shall be implemented to minimise soil erosion</p> |



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| <p>b) Prevent the degradation of soil characteristics such as, quality, structure, stability, texture, water-holding capacity, etc.</p> | <p>(Refer to Section 3.1.6 Surface water, Table 10, Storm water control).</p> |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|

Table 5: Environmental Management Plan – Soil pollution prevention

| OBJECTIVES | MITIGATION MEASURES |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and operational phase</p> <p>a) Minimise the pollution of the soil through effective and proper;</p> <ul style="list-style-type: none"> ➤ Waste management. ➤ Handling, storage and disposal of substances and hazardous chemicals. ➤ Maintenance of ablution facilities. ➤ Traffic and vehicle control. | <p>a) Correct waste management measures (Refer to Section 3.2. Waste management) will be implemented. No dumping of any kind of waste (general, construction, hazardous waste, etc.) will take place on site.</p> <p>b) Proper handling, storage and disposal of hazardous chemicals (Refer to 3.3.2 Handling, Storage and Disposal of Substances and Hazardous Chemicals).</p> <p>c) Sufficient ablution facilities should be provided during the construction phase and these facilities should be maintained (Refer to Section 3.2.6 Ablution Facilities).</p> <p>d) Appropriate management of increased traffic (Refer to 3.3.3 Equipment and vehicle maintenance) and proper onsite vehicle control.</p> <p>e) During the washing process, the use of bio-degradable products that break down easily in the environment must be used.</p> |



3.1.4 Land use and capability

Table 6: Environmental Management Plan - Land use and capability.

| OBJECTIVES | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and Operational phase</p> <p>a) To reduce the potential impact of the proposed activity on the surrounding interested and affected parties.</p> | <p>Langspruit Boerdery forms part of the Agricultural industry. The current land use is therefore considered in compliance with the existing approved Lekwa Local Municipality Spatial Development Framework (SDF) (existing agriculture with a high soil potential).</p> <p>a) The requirements of this Environmental Management Plan should be implemented by all the workers, as not to compromise the integrity of the current land use zoning.</p> |

3.1.5 Fauna and flora

Table 7: Environmental Management Plan – Vegetation

| OBJECTIVES | MITIGATION MEASURES |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) Minimise the destruction of indigenous vegetation.</p> <p>b) Control of alien invasive plant species.</p> | <p>a) Before any construction takes place the proposed area for the expansion will be pegged out. All construction activities will be limited to within these areas in order to reduce the footprint of the proposed activity and avoid impact on adjacent natural vegetation and animal life.</p> <p>b) Construction areas should be fenced off or barricaded prior to and during construction.</p> <p>c) Site clearing is to be limited to only the area necessary for carrying out the specified work.</p> <p>d) The contractor is to draw up a plan for submission to the ECO and the broiler</p> |



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| | <p>facility manager indicating the locations of construction infrastructure including the site-camp, paint or cement cleaning pits, toilets, stores, site office.</p> <ul style="list-style-type: none"> e) The site boundary is to be clearly demarcated and screened from the commencement of works. The erection of the final boundary fence or wall is preferable. f) All demarcation is to be regularly maintained. g) No unauthorised entry, stockpiling, dumping or storage of equipment outside the site boundary is permitted. h) All construction activities, plant, labour and materials are to be restricted within the site boundary. i) Removal of vegetation is to be avoided until such time as soil stripping is required. j) Cleared indigenous vegetation can be stockpiled for possible reuse in later rehabilitation or landscaping, or as a brush pack for erosion prevention. k) Once the construction activities have been completed, the remaining disturbed area must be top soiled, sloped and re-vegetated as soon as possible using suitable grass species. l) Compacted soil should be ripped to ensure effective re-vegetation. m) Soil stabilising measures could include rotovating in straw bales (at a rate of 1 bale/20m²), applying mulching or brush packing, or creating windbreaks using brush or bales. |
| <p>Operational phase</p> <ul style="list-style-type: none"> a) Control of alien invasive plant species. | <ul style="list-style-type: none"> a) Ensure all alien invasive plants are identified on the site. b) Ensure an eradication plan for the removal of the alien invasive vegetation is developed. |



| | |
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| | <ul style="list-style-type: none"> c) Ensure all alien invasive vegetation is removed from the site in accordance to the eradication plan. d) Alien invasive vegetation will be eradicated and controlled by manual removal, chemical application and/or biological control. The regulations in terms of the Conservation of Agricultural Resource Act, 1983 apply. |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Table 8: Environmental Management Plan – Fire control

| OBJECTIVES | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <ul style="list-style-type: none"> a) Minimise the destruction of natural indigenous vegetation. b) To prevent or minimise the impact of a potential fire outbreak. | <ul style="list-style-type: none"> a) Appropriate equipment to deal with fire is to be readily available on site and maintained. b) Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, should be clearly displayed on fuel stores and tanks. c) Proper management of activities that may result in a fire, such as; <ul style="list-style-type: none"> ➤ Handling, storage and disposal of hazardous chemicals and flammable materials (Refer to 3.3.2 Handling, Storage and Disposal of Substances and Hazardous Chemicals). ➤ Hot work activities (Refer to Section 3.5.3 Environmental preparedness and response). ➤ Smoking and cooking (Refer to Section 3.5.3 Environmental preparedness and response). |



| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Operational phase</p> <p>a) Minimise the destruction of natural indigenous vegetation.</p> <p>b) To prevent or minimise the impact of a potential fire outbreak.</p> | <p>a) Appropriate equipment to deal with fire is to be readily available on site and maintained (e.g. fire extinguishers and firefighting equipment) together with appropriate management practices (Refer to Section 3.5.3 Environmental preparedness and response).</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

3.1.6 Surface water

Table 9: Environmental Management Plan – Surface water use

| OBJECTIVES | MITIGATION MEASURES |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and Operational phases</p> <p>a) Prevent unlawful use of water, by registering and licensing appropriate water use activities.</p> | <p>Registration</p> <p>According to the GN 288 General Authorisations, dated April 2012, in terms of Section 39 of the NWA, 1998 (Act No. 36 of 1998), a person who takes more than 10m³ of water from a surface water resource or 10m³ of water from a groundwater resource per day on average over a year on a property or piece of land or stores water, must register the water use with the responsible authority.</p> <p>After the proposed expansion, Langspruit Boerdery will use approximately 2 496m³ of groundwater per cycle, which means they will use approximately 71.31m³ groundwater per day (calculated by: 2 496m³/cycle x 1cycle/35days). In the event of an emergency, surface water may be abstracted to aid in fighting of a fire or stored, in a 30m³ cement dam, as a reserve in times of water shortage. Groundwater is abstracted and used in the operation. Abstracted groundwater is stored in twelve JoJo tanks, with a combined capacity of 60m³. Additional JoJo tanks would need to be installed after the proposed expansion. The abstraction and storage of water will therefore require registration with the responsible authority.</p> |



Licensing

The site area falls within the Vaal River catchment in the upper reaches of the Vaal River (Upper Vaal Water Management Area or WMA). Table 1 (Surface water abstraction and storage volumes) in GN 288 of 4 April 2012, general authorisations in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998), states that the maximum volume of surface water that may be abstracted from this property is 2000m³ a year at a maximum rate of 1l/s. Table 1 of GN 288 also states that a maximum storage of 2 000m³ of water may occur on this property.

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



Table 10: Environmental Management Plan – Storm water control

| OBJECTIVES | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and Operational phases</p> <p>a) To prevent the contamination of ‘clean’ rain water by ‘dirty’ areas through control of storm water runoff.</p> | <p>a) Clean storm water runoff from the surrounding environment must be channeled away from ‘dirty’ areas. These ‘dirty’ areas include the; coal storage area, chemicals storage areas and all waste storage areas.</p> <p>b) Clean storm water should be diverted and kept in the environment surrounding the site.</p> <p>c) Storm water measures should be inspected on a regular basis in order to ensure that the structures are functional and not causing soil erosion.</p> <p>d) Where necessary place culverts underneath road foundations.</p> |

Table 11: Environmental Management Plan – Surface water pollution

| OBJECTIVES | MITIGATION MEASURES |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and Operational phases</p> <p>a) Preventing or minimising the potential pollution of surface water as a result of incorrect waste management.</p> <p>b) Preventing or minimising the potential of surface water pollution as a result of improper handling, storage and disposal of substances and hazardous chemicals.</p> <p>c) Preventing or minimising the potential pollution of surface water as a result of insufficient and poorly maintained ablution facilities.</p> <p>d) Preventing or minimising the potential pollution of surface water as a result of traffic.</p> | <p>a) Correct waste management measures (Refer to Section 3.2. Waste management) will be implemented. No dumping of any kind of waste (general, construction, hazardous waste, etc.) will take place on site.</p> <p>b) Proper handling, storage and disposal of hazardous chemicals (Refer to 3.3.2 Handling, Storage and Disposal of Substances and Hazardous Chemicals).</p> <p>c) Sufficient ablution facilities should be provided during the construction phase and these facilities should be maintained (Refer to Section 3.2.6 Ablution Facilities).</p> <p>d) Appropriate management of increased traffic (Refer to 3.3.3 Equipment and vehicle maintenance) and proper onsite vehicle control.</p> <p>e) During the washing process, the use of bio-degradable products that break</p> |



- down easily in the environment must be used.
- f) Spillage of contaminated wash water into the environment should be prevented (Refer to 3.2.5 wastewater generated by washing activities).

3.1.7 Groundwater

Table 12: Environmental Management Plan – Unlawful groundwater use.

| OBJECTIVES | MITIGATION MEASURES |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and operational phase</p> <ul style="list-style-type: none"> a) Prevent unlawful use of water, by registering and licensing appropriate water use activities. | <p>Registration</p> <p>According to the GN 288 General Authorisations, dated April 2012, in terms of Section 39 of the NWA, 1998 (Act No. 36 of 1998), a person who takes more than 10m³ of water from a surface water resource or 10m³ of water from a groundwater resource per day on average over a year on a property or piece of land or stores water, must register the water use with the responsible authority.</p> <p>After the proposed expansion, Langspruit Boerdery will use approximately 2 496m³ of groundwater per cycle, which means they will use approximately 71.31m³ groundwater per day (calculated by: 2 496m³/cycle x 1cycle/35days). In the event of an emergency, surface water may be abstracted to aid in fighting of a fire or stored, in a 30m³ cement dam, as a reserve in times of water shortage. Groundwater is abstracted and used in the operation. Abstracted groundwater is stored in twelve JoJo tanks, with a combined capacity of 60m³. Additional JoJo tanks would need to be installed after the proposed expansion. The abstraction and storage of water will therefore require registration with the responsible authority.</p> |



Licensing

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

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

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



Table 13: Environmental Management Plan – Groundwater pollution.

| OBJECTIVES | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and operational phase</p> <p>a) Preventing or minimising the potential pollution of groundwater as a result of incorrect waste management.</p> <p>b) Preventing or minimising the potential of groundwater pollution as a result of improper handling, storage and disposal of substances and hazardous chemicals.</p> <p>c) Preventing or minimising the potential pollution of groundwater as a result of insufficient and poorly maintained ablution facilities.</p> | <p>a) Correct waste management measures (Refer to Section 3.2. Waste management) will be implemented. No dumping of any kind of waste (general, construction, hazardous waste, etc.) will take place on site.</p> <p>b) Proper handling, storage and disposal of hazardous chemicals (Refer to 3.3.2 Handling, Storage and Disposal of Substances and Hazardous Chemicals).</p> <p>c) Sufficient ablution facilities should be provided during the construction phase and these facilities should be maintained (Refer to Section 3.2.6 Ablution Facilities).</p> |

3.1.8 Air quality

Table 14: Environmental Management Plan – Dust control

| OBJECTIVES | MITIGATION MEASURES |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase and operational phase</p> <p>a) To minimise the impact of dust generated by the increased traffic frequency on the ambient air quality.</p> | <p>a) A dustcart needs to be onsite to water down dusty road.</p> <p>b) Speed bumps or traffic speed signs need to be erected to reduce speeding onsite that could result in the generation of dust.</p> <p>c) Regular maintenance of vehicles to address wear of tires and breaks. Optimal engine combustion will allow for 'cleaner' exhaust emissions.</p> <p>d) Open areas should be ripped, if the soil is compacted, fertilized to ensure and re-vegetated as soon as possible using suitable grass species (Refer to Section 3.1.3 Soil, Table 3 and 4).</p> |



Table 15: Environmental Management Plan – Heatco ovens and coal storage areas

| OBJECTIVES | MITIGATION MEASURES |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and operational phase</p> <p>a) To minimise the impact of emissions generated during the heating of broiler facilities on the ambient air quality.</p> | <p>a) Continue the use of A-grade coal in the Heatco ovens, as a lower grade coal may result in higher sulphur emissions.</p> <p>b) Regular maintenance of the Heatco ovens. Optimal combustion will allow for ‘cleaner’ stack emissions.</p> <p>c) Ensure adequate storage of coal to minimize dispersion of fine coal dust, i.e. a covered storage area.</p> <p>a) Storage area should be demarcated and Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, are to be clearly displayed at the coal storage area.</p> <p>a) Fire extinguishers should be readily available at the coal storage area.</p> |

3.1.9 Noise

Table 16: Environmental Management Plan – Noise.

| OBJECTIVES | MITIGATION MEASURES |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) To ensure that the activities to be undertaken during the construction phase do not impact significantly on the construction personnel and noise levels of the surrounding area.</p> | <p>a) The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) regarding hearing protection and noise control measures.</p> <p>b) Regular maintenance of vehicles and equipment.</p> <p>c) All equipment and machinery should be fitted with adequate silencers.</p> <p>d) Working hours should be restricted to daylight hours.</p> <p>e) No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on</p> |



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| | <p>site.</p> <p>f) If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the broiler facility manager.</p> <p>g) No noisy work is to be conducted over the weekends or on public holidays.</p> |
| <p>Operational phase</p> <p>a) To maintain a dB reading of less than 50dB at the site boundary.</p> | <p>a) The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) regarding hearing protection and noise control measures.</p> <p>b) Regular maintenance of vehicles, back-up generators and equipment.</p> <p>c) All equipment and machinery should be fitted with adequate silencers.</p> <p>d) No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site.</p> <p>e) If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the broiler facility manager.</p> <p>f) No noisy work is to be conducted over the weekends or on public holidays.</p> |

3.1.10 Sites of archaeological and cultural interest

Table 17: Environmental Management Plan - Sites of archaeological and cultural interest.

| OBJECTIVES | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and operational phase</p> <p>a) To prevent any impact on archaeological or other heritage remains that may be excavated during the construction and/or operational phase.</p> | <p>a) If any archaeological or other heritage remains are exposed during the construction and/or operational phase, the South African Heritage Resources Agency (SAHRA) must be contacted. In this regard, the applicant must take note of the requirements in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999).</p> |



3.1.11 Environmental sensitive areas

Table 18: Environmental Management Plan – Environmental sensitive areas.

| OBJECTIVES | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <p>Construction phase and operational phase</p> <p>a) To prevent environmental degradation of biodiversity and its carrying capacity as a result of inadequate precaution to protect sensitive areas.</p> | <p>a) Implementation of Environmental Management Plans as mentioned.</p> |

3.1.12 Aesthetic aspects

Table 19: Environmental Management Plan – General housekeeping.

| OBJECTIVES | MITIGATION MEASURES |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction and operational phase</p> <p>a) To prevent nuisance, such as odour, to the surrounding interested and affected parties as a result of poor housekeeping.</p> | <p>a) It is the responsibility of the site workers as well as the contractors to ensure that the site is kept neat and tidy.</p> <p>b) Proper waste management measures should be implemented at the site (Refer to Section 3.2 Waste Management).</p> <p>c) All site workers and contractors must comply with the requirements of the Environmental Management Plan.</p> <p>d) Gardens should be kept tidy.</p> |



3.2 Waste management

3.2.1 General/domestic and hazardous waste

Table 20: Environmental Management Plan – Construction waste.

| OBJECTIVES | MITIGATION MEASURES |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) To prevent or minimise the contamination of the natural environment by pollutants from general and hazardous waste generated onsite.</p> | <p>a) Building rubble is to be kept separate from other construction waste. Rubble is to be kept clean of brick ties, plastics, papers and cement bags at all times.</p> <p>b) Rubble stockpiles and waste structures shall be positioned to permit easy access by removal trucks.</p> <p>c) Accumulation of large stockpiles of rubble and waste is not permitted. Waste is to be removed at regular intervals, with a minimum frequency of once a week.</p> <p>d) A construction waste collection structure shall be erected on commencement of construction work within the boundaries of the site. The minimum requirement is as follows:</p> <ul style="list-style-type: none"> ➤ 4 Ready-fence panels (3m x 1.8m) covered with shade cloth or hessian, one panel being movable to provide access. The structure shall have a roof (ready fence panel, or similar) to contain waste materials in windy conditions. The floor shall be lined with DPC plastic to prevent ground contamination from leachate such as cement powder residue or empty chemical or paint containers. ➤ Alternatively, waste skips can be used but also need to be covered with shade cloth to ensure the containment of waste. <p>e) All waste is to be disposed of at approved landfill sites. No burning or burying is permitted.</p> |



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| | f) The contractor shall delegate a specific waste management job description to an individual or team if directed by the ECO. |
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Table 21: Environmental Management Plan – General/domestic and hazardous waste.

| OBJECTIVES | MITIGATION MEASURES |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) To prevent soil, surface- and ground water pollution and the nuisance as a result of poor waste management.</p> | <p>a) Installation of sufficient waste bins and skips/bulk containers where necessary.</p> <p>b) All containers (bins and skips/bulk containers) shall be kept in a clean and hygienic manner.</p> <p>c) Containers (bins and skips/bulk containers) utilized for the disposal of general and hazardous waste must be demarcated accordingly.</p> <p>d) Waste material may only be temporarily stored at areas demarcated for such storage practices,</p> <p>e) General waste shall be stored in a manner that prevents the harbouring of pests.</p> <p>f) General waste materials should always be stored or disposed of separately from hazardous waste material (e.g. oil, diesel),</p> <p>g) General and hazardous waste generated during production is to be disposed of in appropriately demarcated bins.</p> <p>h) Bins are then emptied into appropriately demarcated skips/bulk containers with every break or more as the need arise.</p> <p>i) Skips/bulk containers should be removed to a nearby landfill site on a weekly basis or more as the need arise.</p> |
| <p>Operational phase</p> <p>a) To prevent soil, surface- and ground water pollution and</p> | <p>a) Develop a waste management plan.</p> <p>b) Take note that hazardous waste includes; litter, mortalities, ash, empty</p> |



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| <p>the nuisance as a result of poor waste management.</p> | <p>hazardous chemical substance containers, soil and material (e.g. cloths) contaminated by hazardous chemical substances, etc.</p> <p>c) The waste management plan should consider the type of waste, description, source, storage, disposal method, disposal facility and responsible person.</p> <p>d) The implementation of the waste management plan should ensure;</p> <ul style="list-style-type: none"> ➤ Installation of sufficient waste bins and skips/bulk containers where necessary. ➤ All containers (bins and skips/bulk containers) shall be kept in a clean and hygienic manner. ➤ Containers (bins and skips/bulk containers) utilized for the disposal of general and hazardous waste must be demarcated accordingly. ➤ Waste material may only be temporarily stored at areas demarcated for such storage practices, ➤ General waste shall be stored in a manner that prevents the harbouring of pests. ➤ General waste materials should always be stored or disposed of separately from hazardous waste material (e.g. oil, diesel), ➤ General and hazardous waste generated during production is to be disposed of in appropriately demarcated bins. ➤ Bins are then emptied into appropriately demarcated skips/bulk containers with every break or more as the need arise. ➤ Skips/bulk containers should be removed to a nearby landfill site on a weekly basis or more as the need arise. ➤ Safe disposal certificates should be requested from general and hazardous |
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| | <p>landfill sites with every waste dumping.</p> <ul style="list-style-type: none"> ➤ These safe disposal certificates should be kept on file to illustrate compliance with the cradle to grave principle. ➤ The ECO shall monitor the compliance with the cradle to grave principle. <p>e) No incineration of any kind of waste will be permitted onsite.</p> |
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3.2.2 Litter (manure and bedding)

Table 22: Environmental Management Plan – Litter (manure and bedding)

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Operational phase</p> <p>a) To minimize the impact of chicken litter on soil-, surface- and ground-water pollution and the nuisance caused by odors from the litter.</p> | <p>Note: The management of chicken litter should be included in the waste management plan.</p> <ul style="list-style-type: none"> a) Maintain good litter conditions by keeping the litter dry throughout the production cycle. b) Litter should be collected and bagged immediately after a production cycle and prior to removal. c) The broiler houses must be dry cleaned efficiently to remove as much litter as possible and to reduce contamination of wash water used. d) The removal of manure will occur after every cycle is completed to prevent accumulation on site, keeping the nutrient rich manure from polluting surface and ground water bodies, avoiding offensive smells and ensuring the hygiene and health of the new flock. e) Litter will be preserved in a dry area, covered by sheeting or within a shed to protect it from rain and leaching in order to prevent noxious odours and |



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| | <p>ammonia from forming.</p> <p>f) Litter will then be fed to cattle on the farm.</p> <p>Research and consulting will be required to determine which technology, design and process would be the most economically, socially and environmentally sustainable option for the handling, storage and disposal of litter.</p> |
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3.2.3 Chicken mortalities

Table 23: Environmental Management Plan – Chicken mortalities.

| OBJECTIVES | MITIGATION MEASURES |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Operational phase</p> <p>a) To minimize the impact of hazardous mortality waste on human and other avian health, soil-, surface-, groundwater pollution and the nuisance caused by odours.</p> | <p>Note: The management of chicken mortalities should be included in the waste management plan.</p> <p>Temporary storage of mortalities</p> <p>a) The temporary storage area for mortalities must be a covered area that has access control, preventing the unlawful removal of mortalities.</p> <p>b) In the event of temporary storage, mortalities must be stored in sealed bins prior to disposal.</p> <p>Disposal of mortalities</p> <p>a) Mortalities must be disposed of as soon as possible.</p> <p>b) Mortalities are currently incinerated in an old silo.</p> <p>Disposal of mass mortalities</p> |



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| | <p>In the event of a disease outbreak:</p> <ul style="list-style-type: none">a) Notify the state vet.b) The state vet must visit the site.c) The state vet will place the property, or the specific chicken site or house that is infected, under quarantine.d) Depending on the disease and severity, the chickens can be slaughtered on site or transported to a abattoir with a red cross permit.e) Alternatively, mortalities can be covered with lime and buried. <p>Alternative methods of disposal</p> <ul style="list-style-type: none">a) The burning of mortalities in the silo triggers both a listed activity in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) and in terms of National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).b) Mortalities could be disposed of in on-site mortality pits. Take note that a mortality pit will trigger a waste management license in terms of Government Notice No. 718 as contemplated in Section 19(1) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).c) Mortalities could be composted onsite. The implementation of such a facility will entail initial capital investment costs and ongoing operational costs and depending on the design and/or method of composting might trigger a waste management license in terms of Government Notice No. 718 as contemplated in Section 19(1) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008). In the long term the initial capital investment could be |
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| | <p>offset through the selling of compost.</p> <p>Further research and consulting is required to determine which technology, design and process would be the most economically, socially and environmentally sustainable option for the handling, storage and disposal of mortalities.</p> |
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3.2.4 Ash

Table 24: Environmental Management Plan – Ash.

| OBJECTIVES | MITIGATION MEASURES |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Operational phase</p> <p>a) To prevent soil, surface- and ground water pollution and the nuisance as a result of poor waste management.</p> | <p>Note: The management of ash should be included in the waste management plan.</p> <p>a) Ash must be stored on a concrete area or in suitable container prior to removal.</p> <p>b) Further research and consulting is required to determine which technology, design and process would be the most economically, socially and environmentally sustainable option for the handling, storage and disposal of ash.</p> |



3.2.5 Wastewater generated by washing activities

Table 25: Environmental Management Plan – Wastewater by washing of equipment

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Construction phase</p> <p>a) To prevent the pollution of soil and surface water bodies by wash water runoff containing concrete and cement contaminants.</p> | <p>a) No washing of vehicles is permitted on site.</p> <p>b) A dedicated temporary cleaning area is to be identified to facilitate washing of all cement and painting equipment.</p> <p>c) The cleaning area could be a plastic lined cleaning pit or dedicated plastic or metal drums, located as close as possible to a water point.</p> <p>d) No wastewater may be disposed of on site, onto the soil or into any water body.</p> <p>e) Runoff from the washing activities is to be contained against the building by excavations of berms around the foundations.</p> |

Table 26: Environmental Management Plan – Washing of broiler facilities

| OBJECTIVES | MITIGATION MEASURES |
|-------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Operational phase</p> <p>a) To control waste water runoff from washing of broiler facilities.</p> | <p>a) Rearing houses are cleaned after each cycle.</p> <p>b) After litter is bagged and stored, high-pressure hoses should be used in the washing of the houses, to minimise the amount of water used.</p> <p>c) Wash and sanitize rearing facilities with biodegradable soaps and disinfectants.</p> <p>d) Use biodegradable soaps and disinfectants in the footbath and shower block.</p> <p>e) Use biodegradable soaps and disinfectants for washing of vehicles.</p> <p>f) Currently wash water runs off into the surrounding environment. This will no longer be permitted and an alternative method of disposal of wastewater is required.</p> |



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| | <p>g) Further research and consulting will be required to determine which technology, design and process would be the most economically, socially and environmentally sustainable option for the disposal of wastewater from washing of broiler facilities.</p> <p>h) Recommendation: Channeling wastewater into onsite evaporation ponds.</p> |
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3.2.6 Ablution facilities

Table 27: Environmental Management Plan – Ablution facilities

| OBJECTIVES | MITIGATION MEASURES |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) Prevent soil, surface- and groundwater pollution from unsanitary conditions onsite.</p> | <p>a) Sufficient ablution facilities shall be provided – minimum of 1 toilet per 15 workers.</p> <p>b) The location of toilets is to be approved by the ECO prior to site establishment, but shall be located within 100m of any work point.</p> <p>c) Ablating anywhere other than in the toilets shall not be allowed.</p> <p>d) The ablution facilities are to be secured to avoid them from blowing or falling over.</p> <p>e) The Contractor shall ensure that any chemicals and/or waste from the ablution facilities are not spilled on the ground at any time.</p> <p>f) Ablution facilities are to be serviced weekly or more frequently if required.</p> <p>g) The contractor is to ensure that no spillage occurs and that the contents are removed from site according to approved methods.</p> |
| <p>Operational phase</p> <p>a) To prevent or minimise the contamination of the natural environment by pollutants from poor sanitation onsite.</p> | <p>a) Sufficient ablution facilities shall be provided – minimum of 1 toilet per 15 workers.</p> <p>b) The location of toilets is to be approved by the ECO prior to site</p> |



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| | <p>establishment, but shall be located within 100m of any work point.</p> <p>c) Ablution facilities shall be inspected and maintained to prevent or minimize blockage and leakages.</p> <p>d) Ablution facilities are to be serviced weekly or more frequently if required.</p> <p>e) Toilets should have properly closing doors and supplied with toilet paper.</p> <p>f) Awareness of the importance of proper hygiene should be created among employees.</p> <p>g) Ablating anywhere other than in the toilets shall not be allowed.</p> |
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3.3 Resource management

3.3.1 Water, electricity and material usage

Table 28: Environmental Management Plan - Resource management.

| OBJECTIVE | MITIGATION MEASURES |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) To prevent or minimise the impact of redundant activities and use of material that lead to unnecessary reduction of valuable resources.</p> | <p>a) Proper environmental training and awareness.</p> <p>b) Regular maintenance and inspection of all equipment to prevent leaks.</p> |
| <p>Operational phase</p> <p>a) To prevent or minimise the impact of redundant activities and use of material that lead to unnecessary reduction of valuable resources.</p> | <p>General</p> <p>a) Ensure that all employees have been informed on the importance of natural resources (Proper environmental training and awareness).</p> <p>b) Regular site inspection by supervisors.</p> <p>c) Inspect operations regularly to determine areas of improvement with regards to resource consumption.</p> |



- d) Regular maintenance and inspection of equipment, such as hose pipes, to prevent leaks.
- e) Monitoring of resource consumption.
- f) Identify areas where resource consumption can be minimised.
- g) Set targets to try minimise resource consumption.
- h) Identify technologies and practices which may reduce resource consumption.
- i) Implementation of technologies and practices which can reduce resource consumption.

Water

- a) Regular inspection and maintenance of all boreholes, JoJo tanks, toilets, water pipes and taps.
- b) Leaking JoJo tanks, taps, toilets and pipes are to be repaired immediately.
- c) Running water taps and pipes may not be left unattended.
- d) Each time you flush the toilets approximately 20 litres of water is used, therefore use the toilets accordingly.
- e) All pipe/hose and tap connections are to be fitted with correct and appropriate plumbing fittings.

Electricity

- a) Save electricity by turning off lights and computers when leaving the office.
- b) Halogen light bulbs convert approximately 80% of the energy used into heat rather than light. Replace spent light bulbs with energy saving CFLs (compact fluorescent light) or newer and more efficient LEDs (light emitting diode).



3.3.2 Handling, storage and disposal of substances

Table 29: Environmental Management Plan – Cement and concrete spillages

| OBJECTIVES | MITIGATION MEASURES |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) To prevent the pollution of soil and surface water as a result of concrete and cement improper handling, storage, mixing and disposal of cement and concrete.</p> | <p>a) No mixing of concrete or cement directly on the ground is permitted. The mixing of concrete will only be done on mortarboards (dugga-boards).</p> <p>b) Ready-mix trucks are not permitted to clean chutes on site. Cleaning into foundations or a dedicated cleaning pit is permitted.</p> <p>c) Bricklayers and plasterers are to minimise any cement spill or runoff in their work area and are to ensure that the work area is cleaned of all cement spillage at the end of each workday.</p> <p>d) Both used and unused cement bags are to be stored in weatherproof containers so as not to be affected by rain or runoff.</p> <p>e) Contaminated soil resulting from concrete or cement spills, including residue produced by the washing of cavities, are to be removed immediately after the spillage has occurred and placed on the appropriate rubble stockpile.</p> <p>f) Runoff from the washing out of wall cavities is to be contained against the building by excavations of berms around the foundations. All reasonable measures must be taken to prevent the dirty water from contaminating a watercourse.</p> |



Table 30: Environmental Management Plan – Coal

| OBJECTIVES | MITIGATION MEASURES |
|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) To ensure the proper handling and storage of coal.</p> | <p>a) Store coal utilized for climate control in bunkers.</p> <p>b) Construct a hump/berm at the bunker entrance to prevent rain water from entering.</p> <p>c) Construct a roof to prevent rain water from being contaminated by the coal.</p> <p>d) Prevent coal spillages during loading and remove any coal spillages from the soil and return to the coal bunker.</p> |

Table 31: Environmental Management Plan – Chemical substances.

| OBJECTIVES | MITIGATION MEASURES |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Construction phase</p> <p>a) To prevent and minimise soil and water pollution as a result of poor management and accidental spills of hazardous chemical substances including fuel, greases and oils used onsite.</p> | <p>a) Identify all hazardous chemical substances used onsite, including fuel, greases and oils.</p> <p>b) Obtain the material safety data sheet of each of these hazardous chemical substances.</p> <p>c) Ensure that the material safety data sheets have sufficient information to enable the user to take the necessary measures to protect his/her health and safety and that of the environment.</p> <p>d) Material Safety Data Sheets for all hazardous chemical substances must be readily available on site.</p> <p>e) Keep a stock inventory register of all chemicals in the store.</p> <p>f) Powders must be stored above liquids.</p> <p>g) Proper storage of chemicals in a lockable, well ventilated building.</p> <p>h) Ensure adequate access control for the storage area.</p> |



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| | <ul style="list-style-type: none">i) Storage areas for hazardous chemicals are to comply with standard fire safety regulations.j) Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed in areas housing chemicals.k) Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water.l) Chemicals are to be properly labeled and handled in a safety conscious manner.m) All personnel handling hazardous chemicals and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE).n) Ensure that diesel/ fuel tanks are in a bunded area with capacity of holding 110% of the total storage volume.o) The removal of only the daily-required amount of chemicals to be used from the shed.p) If refueling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel.q) Use of drip trays during filling of machinery or equipment. Drip trays should be emptied into secondary containers on a regular basis.r) Ensure that any spilled chemical cannot exit the designated storage area by constructing a hump / bump at the exit, or store chemicals in a spill tray. |
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| | <ul style="list-style-type: none"> s) Clean all spillage of fuels, lubricants and other petroleum based products immediately. t) The contaminated material must be disposed of in accordance with the waste management procedure. u) No hazardous chemical must be discarded in the sewage or storm water system. v) Train staff on the use of chemicals in accordance with the risks as described in the material data sheets. w) Soil contaminated with hazardous chemical substances shall be treated as hazardous waste and removed from site. |
| <p>Operational phase</p> <p>a) To prevent and minimise soil and water pollution as a result of poor management and accidental spills of chemical substances (fuel, greases, oils, vaccines, detergents etc).</p> | <ul style="list-style-type: none"> a) Identify all chemical substances used onsite, including fuel, greases, vaccines, detergents etc. b) Obtain the material safety data sheet of each of these chemical substances. c) Ensure that the material safety data sheets have sufficient information to enable the user to take the necessary measures to protect his/her health and safety and that of the environment. b) Material Safety Data Sheets for all hazardous chemical substances must be readily available on site. d) Develop a dangerous goods management plan based on the material safety data sheets of all identified chemical substances and the 1995 Hazardous Chemical Substances Regulations in terms of the Occupational Health and Safety Act, 1993 (Act no. 85 of 1993). e) Implement a dangerous goods management plan. f) Keep a stock inventory register of all chemicals in the store. |



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| | <ul style="list-style-type: none">g) Powders must be stored above liquids.h) Proper storage of chemicals in a lockable, well ventilated building.i) Ensure adequate access control for the storage area.j) Storage areas for hazardous chemicals are to comply with standard fire safety regulations.k) Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed in areas housing chemicals.l) Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water.m) Chemicals are to be properly labeled and handled in a safety conscious manner.n) All personnel handling hazardous chemicals and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE).o) Ensure that diesel/ fuel tanks are in a bunded area with capacity of holding 110% of the total storage volume.p) The removal of only the daily-required amount of chemicals to be used from the shed.q) If refueling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel.r) Use of drip trays during filling of machinery or equipment. Drip trays should be emptied into secondary containers on a regular basis. |
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| | <ul style="list-style-type: none"> s) Ensure that any spilled chemical cannot exit the designated storage area by constructing a hump / bump at the exit, or store chemicals in a spill tray. t) Clean all spillage of fuels, lubricants and other petroleum based products immediately. u) The contaminated material must be disposed of in accordance with the waste management procedure. v) No hazardous chemical must be discarded in the sewage or storm water system. w) Train staff on the use of chemicals in accordance with the risks as described in the material data sheets. x) Soil contaminated with hazardous chemical substances shall be treated as hazardous waste and removed from site. |
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3.3.3 Equipment and vehicle maintenance

Table 32: Environmental Management Plan – Equipment and vehicle maintenance.

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Construction phase</p> <p>a) To prevent hydrocarbon pollution of soils, surface- and ground water by spilling of fuel, grease or oil and leaking equipment and vehicles.</p> | <ul style="list-style-type: none"> a) Equipment and vehicles are to be repaired immediately upon developing leaks. b) Drip trays shall be supplied for all repair work undertaken on machinery on site. c) Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to contain incidental spills and pollutants. d) Drip trays are to be inspected daily for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. |



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| | <ul style="list-style-type: none"> e) Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water. f) Soil contaminated with hazardous substances, fuel or oil shall be treated as hazardous waste and removed from site. g) If refueling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel. h) All liquid fuels (petrol and diesel) are to be stored in tanks or containers with lids. i) Inspect vehicles on entering the facility to ensure vehicles are in sound condition to reduce the risk of oil or diesel spillages. |
| <p>Operational phase</p> <p>a) To prevent hydrocarbon pollution of soils, surface- and ground water by spilling of fuel, grease or oil and leaking equipment and vehicles.</p> | <ul style="list-style-type: none"> a) Inspection and maintenance of equipment, generators and vehicles owned by Langspruit boerdery shall take place on a regular basis. b) Security shall inspect vehicles (Such as those that belong to Earlybird Farm) on entering the facility to ensure vehicles are in sound condition to reduce the risk of oil or diesel spillages. c) Equipment, generators and vehicles are to be repaired immediately upon developing leaks. d) Generators must be stored on a concrete floor in a bunded area. e) Drip trays shall be supplied for all repair work undertaken on machinery on site. f) Drip trays are to be utilised during daily greasing and re-fuelling of machinery |



and to contain incidental spills and pollutants.

- g) Drip trays are to be inspected daily for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow.
- h) Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water.
- i) Soil contaminated with hazardous substances, fuel or oil shall be treated as hazardous waste and removed from site.
- j) If refueling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel.
- k) All liquid fuels (petrol and diesel) are to be stored in tanks or containers with lids.



3.4 Human environment

3.4.1 Interested and affected parties

Table 33: Environmental Management Plan - Interested and affected parties.

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Construction and operational phases</p> <p>a) To ensure good relations with all interested and affected parties by creating open channels of communication to address matters of concern that may arise.</p> <p>b) To ensure environmental compliance as indicated in the Environmental Authorisation issued and reduce potential environmental impacts.</p> | <p>Compliance</p> <p>a) The site workers must ensure compliance with the relevant legislation at all times.</p> <p>b) The mitigation measures indicated in this Environmental Management Plan will be implemented by all the site workers and contractors.</p> <p>Communication</p> <p>a) Communication between the interested and affected parties and the contractors will be established and maintained.</p> <p>b) In order to provide feedback with regards to complaints received, a complaints register will be kept at the site. The complaints register will record the following: Date when complaint was received, Name of person who reported the complaint and when and how the concern was addressed.</p> |



3.4.2 Environmental awareness and training of employees

Table 34: Environmental Management Plan - Environmental awareness and training.

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Construction phase</p> <p>a) Uneducated and uninformed choices may result in a variety of wrongful activities that can have potential impacts the surrounding environment. Informing employees of their impacts on the environment and how they can prevent or minimise these impacts will lead to sound environmental practices.</p> | <p>a) The contractor is to ensure that all employees, including sub-contractors and their employees, are required to attend onsite Environmental Awareness/Training prior to commencing work on site.</p> <p>b) Follow-up Environmental Awareness/Training may be required from time to time as new subcontractors or crews commence work or for specific activities that may potentially impact the environment.</p> <p>c) The contractor is to maintain accurate records of any training undertaken.</p> <p>d) The ECO shall monitor the contractor’s compliance with the requirement to provide sufficient environmental awareness training to all site staff.</p> <p>e) Training is to cover all aspects of the EMP and procedures to be followed.</p> |
| <p>Operational phase</p> <p>a) Uneducated and uninformed choices may result in a variety of wrongful activities that can have potential impacts the surrounding environment. Informing employees of their impacts on the environment and how they can prevent or minimise these impacts will lead to sound environmental practices.</p> | <p>a) All employees are required to attend onsite Environmental Awareness/Training prior to commencing work on site.</p> <p>b) Follow-up Environmental Awareness/Training may be required from time to time as new employees commence work or for specific activities that may potentially impact the environment.</p> <p>c) The facility manager is to maintain accurate records of any training undertaken.</p> <p>d) The ECO shall monitor the facility managers’ compliance with the requirement to provide sufficient environmental awareness training to all site staff.</p> <p>e) Training is to cover all aspects of the EMP and procedures to be followed.</p> |



3.4.3 Employee health, safety and wellness

Table 35: Environmental Management Plan – Employee health, safety and wellness.

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Construction and operational phase</p> <p>a) To ensure the health and safety of employees working onsite.</p> | <p>a) All workers working with dangerous and complex equipment must be trained in the correct handling of equipment.</p> <p>b) All accidents or incidents must be reported to management.</p> <p>c) Workers must be trained in basic accident and emergency response.</p> <p>d) Permanent first aid boxes must be located at readily accessible locations.</p> <p>e) The workers have freedom of association.</p> <p>f) Workers have access to running water, sanitation and medical facilities,</p> <p>g) Workers have a right to basic housing if housed on site.</p> <p>h) Workers receive the required minimum wage as stipulated in the labour law.</p> <p>i) No child labour will be utilized.</p> |

3.5 Environmental performance guidelines

3.5.1 Self performance assessment

Table 36: Environmental Management Plan – Self performance assessment

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Operational phase</p> <p>a) The aim of this guideline is to provide guidance during self performance evaluations of the operation engaged into by the organisation.</p> | <p>a) Compile a checklist applicable to the site, detailing all operational requirements to manage each identified risk. The checklist should typically contain all the identified aspects.</p> <p>b) During the audit/performance evaluation, specific attention should be given to the effectiveness of EMPs and other mitigation measures,</p> |



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| | <ul style="list-style-type: none"> c) Self performance assessment should be carried out at least annually, and d) Ensure that all information obtained from changed processes etc. is communicated to all the applicable documents |
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3.5.2 Record keeping

Table 37: Environmental Management Plan – Record keeping.

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Operational phase</p> <ul style="list-style-type: none"> a) The main aim of this guideline is to ensure record keeping on Langspruit Boerdery complies with good management practices and to have all records available at any time. | <ul style="list-style-type: none"> a) All records regarding maintenance of equipment, application of pesticides, financial records, rainfall and any other relevant records will be kept for at least two years. b) All the records will be kept on a central point at the office whilst electronic backups will be kept at an offsite location. c) Any records that need to be kept for longer according to legislation will be kept indefinitely or as long as legislation requires. |

3.5.3 Environmental preparedness and response

Table 38: Environmental Management Plan – Fire outbreak

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Construction and operational phase</p> <ul style="list-style-type: none"> a) To prevent the occurrence and spreading of a veldt fire. | <p>Equipment</p> <ul style="list-style-type: none"> a) Basic fire-fighting equipment is to be placed at strategic locations on site and readily available (e.g. at the site office, flammable material store and watchman’s container). b) Equipment is to be maintained in good working order to the satisfaction of local |



fire authorities.

- c) All personnel handling fuels and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE).

Signage

- a) Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed on fuel storage facilities and tanks.
- b) Emergency numbers are to be clearly displayed.
- c) All construction workers shall be issued with ID badges and clearly identifiable uniforms.

Training

- a) An emergency procedure, taking into consideration all potential emergencies, such as a fire outbreak, hazardous chemical spill, etc. should be compiled.
- b) The contractor is to ensure that all employees, including sub-contractors and their employees, are trained on the emergency procedure.
- c) Follow-up emergency training may be required from time to time as new subcontractors or crews commence work.
- d) The contractor is to maintain accurate records of any emergency training undertaken.
- e) The ECO shall monitor the contractor’s compliance with the requirement to provide sufficient emergency training to all site staff.



Activities

- a) All construction workers shall be transported to and from site on a daily basis.
- b) Workers shall remain on the site at all times during the work day and no one will be allowed to leave site by foot, not even during break times.
- c) Cooking during lunch is to be restricted to bottled gas facilities in designated areas approved by the ECO. This facility is to be supervised and strictly controlled.
- d) A dedicated braai facility may be permitted in an area approved by the ECO, if the campsite is in close proximity to firefighting equipment. At no time is a braai fire to be left unattended.
- e) Smoking is prohibited near places where any readily combustible or flammable materials are present. Notices are to be prominently displayed prohibiting smoking in such areas.
- f) Welding, flame cutting and other hot work is only to be undertaken in places where the necessary safety precautions are in place (i.e. not near potential sources of combustion and with a fire extinguisher immediately accessible).
- g) Night watchmen are to be provided with adequate cooking and heating facilities (no open fires), a suitable method of disposing of wastewater, and access to communication equipment.
- h) No open fires are permitted.
- a) Ensure that adequate emergency equipment (e.g. fire extinguishers and fire fighting equipment) is available.
- b) Plan the creation of fire breaks before commencement of the activity.
- c) Ensure that all employees involved have received adequate training with



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| | <p>regards to the handling of fires.</p> <ul style="list-style-type: none"> d) Notify the local fire association of burning activities. e) Ensure the adequacy of fire breaks through planning. i) Regularly inspect the fire breaks to ensure the adequacy thereof. <p>Flammable materials</p> <ul style="list-style-type: none"> a) Flammable materials storage must comply with standard fire safety regulations. b) All flammable materials are to be stored in a suitable, lockable storage area. c) Combustible materials may not accumulate on the construction site. d) Access to fuel and chemical stores should be strictly controlled. e) Stockpiles of vegetation are only to be located in areas approved by the facility manager and may not exceed 2m in height. Methods of stacking must take cognizance of the possible creation of a fire hazard. f) No burning of stockpiled vegetation is permitted. |
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Table 39: Environmental Management Plan – External reporting requirements

| OBJECTIVES | MITIGATION MEASURES |
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| <p>Construction and operational phases</p> <ul style="list-style-type: none"> a) To prevent and manage emergency situations. | <ul style="list-style-type: none"> a) Major emergency incidents which may cause danger to the public or the environment, which includes pollution of a water resource, must be reported as per the requirements of Section 30 of the National Environmental Management Act, 1998 and Section 20 of the National Water Act, 1998. |



3.6 Decommissioning phase

3.6.1 Rehabilitation

Table 40: Environmental Management Plan – Rehabilitation

| OBJECTIVES | MITIGATION MEASURES |
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| <p>a) Minimise disturbance to local geology, topography and hydrology.</p> <p>b) Restore soil structure & chemistry to a state which approximates the state that it was in prior to disruption and construction activities.</p> <p>c) Control the growth of declared weeds and/or invader plants.</p> <p>d) To ensure good relations with all interested and affected parties by creating open channels of communication to address matters of concern that may arise during decommission phase.</p> | <p>a) Prepare a rehabilitation plan;</p> <ul style="list-style-type: none"> ➤ Assess the environmental significance of the land. ➤ Identify major limitations to rehabilitation ➤ Set rehabilitation objectives ➤ Define rehabilitation actions ➤ Monitoring, reporting and auditing ➤ Completion targets <p>b) Rehabilitation objectives should consider;</p> <ul style="list-style-type: none"> ➤ Long-term geological stability ➤ Soil structure & chemistry ➤ Ground & surface water processes ➤ Ecological implications of the altered soils and landforms ➤ Impact of climatic variability ➤ Nutrient cycling ➤ Impacts of disturbance & fire ➤ Plant diversity & classification ➤ Reproductive capacity & dispersal ➤ Plant genetics & provenance ➤ Plant succession & competition |



- Ecosystem interactions & services
 - Weed biology & ecology
 - Microbial diversity & ecology
 - Animal diversity & classification
 - Animal succession & migration
- c) Implement rehabilitation plan.
- d) In order to provide feedback with regards to complaints received, a complaints register will be kept at the site. The complaints register will record the following:
Date when complaint was received, Name of person who reported the complaint and when and how concern was addressed.
- e) Complete rehabilitation, signoff and handover of site.

