BASIC ASSESSMENT REPORT
IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED)

October 2017

PROJECT TITLE

JAN SMUTS ROOIHOOGTE PIGGERY EXPANSION, RIEBEECK KASTEEL

30 April 2018

REPORT TYPE CATEGORY	REPORT REFERENCE NUMBER	DATE OF REPORT
Pre-Application Basic Assessment Report (if applicable)[1]	2206/17/PA	26 April 2018
~~Draft Basic Assessment Report[2]~~		
~~Final Basic Assessment Report[3] or, if applicable Revised Basic Assessment Report[4] (strikethrough what is not applicable)~~		

Notes:

1. In terms of Regulation 40(3) potential or registered interested and affected parties, including the Competent Authority, may be provided with an opportunity to comment on the Basic Assessment Report prior to submission of the application but must again be provided an opportunity to comment on such reports once an application has been submitted to the Competent Authority. The Basic Assessment Report released for comment prior to submission of the application is referred to as the "Pre-Application Basic Assessment Report". The Basic Assessment Report made available for comment after submission of the application is referred to as the "Draft Basic Assessment Report". The Basic Assessment Report together with all the comments received on the report which is submitted to the Competent Authority for decision-making is referred to as the "Final Basic Assessment Report".

2. In terms of Regulation 19(1)(b) if significant changes have been made or significant new information has been added to the Draft Basic Assessment Report , which changes or information was not contained in the Draft Basic Assessment Report consulted on during the initial public participation process, then a Final Basic Assessment Report will not be submitted, but rather a "Revised Basic Assessment Report", which must be subjected to another public participation process of at least 30 days, must be submitted to the Competent Authority together with all the comments received.

DEPARTMENTAL REFERENCE NUMBER(S)

Pre-application reference number:	16/3/3/6/7/1/F5/20/2206/17
File reference number (EIA):	
NEAS reference number (EIA):	
File reference number (Waste):	
NEAS reference number (Waste):	
File reference number (Air Quality):	
NEAS reference number (Air Quality):	
File reference number (Other):	
NEAS reference number (Other):	

CONTENT AND GENERAL REQUIREMENTS

Note that:

1. The content of the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended), any subsequent Circulars, and guidelines must be taken into account when completing this Basic Assessment Report Form.
2. This Basic Assessment Report is the standard report format which, in terms of Regulation 16(3) of the EIA Regulations, 2014 (as amended) must be used in all instances when preparing a Basic Assessment Report for Basic Assessment applications for an environmental authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA")and the EIA Regulations, 2014 (as amended) and/or a waste management licence in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) ("NEM:WA"), and/or an atmospheric emission licence in terms of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA") when the Western Cape Government: Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority/Licensing Authority.
3. This report form is current as of October 2017. It is the responsibility of the Applicant/ Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the report form have been released by the Department. Visit the Department's website at **http://www.westerncape.gov.za/eadp** to check for the latest version of this checklist.
4. The required information must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The tables may be expanded where necessary.
5. The use of "not applicable" in the report must be done with circumspection. All applicable sections of this report form must be completed. Where "not applicable" is used, this may result in the refusal of the application.
6. While the different sections of the report form only provide space for provision of information related to one alternative, if more than one feasible and reasonable alternative is considered, the relevant section must be copied and completed for each alternative.
7. Unless protected by law, all information contained in, and attached to this report, will become public information on receipt by the competent authority. If information is not submitted with this report due to such information being protected by law, the applicant and/or EAP must declare such non-disclosure and provide the reasons for believing that the information is protected.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this report must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
9. This Report must be submitted to the Department and the contact details for doing so are provided below.
10. Where this Department is also identified as the Licencing Authority to decide applications under NEM:WA or NEM:AQA, the submission of the Report must also be made as follows, for-
    - Waste management licence applications, this report must also (*i.e.*, another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (tel: 021-483-2756 and fax: 021-483-4425) at the same postal address as the Cape Town Office.
    - Atmospheric emissions licence applications, this report must also be (*i.e.*, another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (tel: 021 483 2798 and fax: 021 483 3254) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

CAPE TOWN OFFICE		~~**GEORGE REGIONAL OFFICE**~~
REGION 1 **(City of Cape Town & West Coast District)**	~~**REGION 2**~~ ~~**(Cape Winelands District & Overberg District)**~~	~~**REGION 3**~~ ~~**(Central Karoo District & Eden District)**~~
Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 1) at: Tel.: (021) 483-5829 Fax: (021) 483-4372	~~Department of Environmental Affairs and Development Planning~~ ~~Attention: Directorate: Development Management (Region 2)~~ ~~Private Bag X 9086~~ ~~Cape Town,~~ ~~8000~~ ~~Registry Office~~ ~~1st Floor Utilitas Building~~ ~~1 Dorp Street,~~ ~~Cape Town~~ ~~Queries should be directed to the Directorate: Development Management (Region 2) at:~~ ~~Tel.: (021) 483-5842~~ ~~Fax: (021) 483-3633~~	~~Department of Environmental Affairs and Development Planning~~ ~~Attention: Directorate: Development Management (Region 3)~~ ~~Private Bag X 6509~~ ~~George,~~ ~~6530~~ ~~Registry Office~~ ~~4th Floor, York Park Building~~ ~~93 York Street~~ ~~George~~ ~~Queries should be directed to the Directorate: Development Management (Region 3) at:~~ ~~Tel.: (044) 805-8600~~ ~~Fax: (044) 805 8650~~

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ACRONYMS USED IN THIS BASIC ASSESSMENT REPORT AND APPENDICES:

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
DEA	National Department of Environmental Affairs
DEA&DP	Western Cape Government: Environmental Affairs and Development Planning
DWS	National Department of Water and Sanitation
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Ecological Support Area
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM:ICMA	National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)
NEM:WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PPP	Public Participation Process

DETAILS OF THE APPLICANT

Applicant / Organisation / Organ of State:	JH Smuts Boerdery Edms Bpk		
Contact person:	Mr. Jan Smuts		
Postal address:	P.O. Box 22, Riebeeck Kasteel		
Telephone:	NA	Postal Code:	7307
Cellular:	083 551 4567	Fax:	NA
E-mail:	smuts@timco.co.za		

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

Name of the EAP organisation:	Eco Impact Legal Consulting (Pty) Ltd		
Person who compiled this Report:	Lauren Abrahams		
EAP Reg. No.:	SACNASP 100126/12		
Contact Person (if not author):	NA		
Postal address:	P.O. Box 45070		
Telephone:	(021) 671 1660	Postal Code:	7735
Cellular:	NA	Fax:	(088) 021 671 1660
E-mail:	admin@ecoimpact.co.za		
EAP Qualifications:	B Tech Oceanography: Cape Peninsula University of Technology (2010)		

Please provide details of the lead EAP, including details on the expertise of the lead EAP responsible for the Basic Assessment process. Also attach his/her Curriculum Vitae to this BAR.

Ms Lauren Abrahams

Lauren Abrahams has completed her professional registration in terms of section 20(3) (b) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003) as a Candidate Natural Scientist in the field of practice Biological Science (Registration number 100126/12). She obtained her B Tech in Oceanography at the Cape Peninsula University of Technology in 2010.

Lauren has trained as an Environmental Assessment Practitioner since July 2015 and has been involved in the compilation, coordination and management of Basic Assessment Reports, Environmental Impact Assessments, Environmental Management Programmes, Waste Licence Applications, Water Use Licence Applications and Baseline Biodiversity Surveys for numerous clients.

EXECUTIVE SUMMARY OF THE BASIC ASSESSMENT REPORT:

The expansion of the existing 1000 sow piggery to increase the piggery with another 1000 sows to 2000 sows by expanding the existing breeding site with 6 piggery houses on approximately 2.8ha, the weaning site with two piggery houses on approximately 0.5ha and the growing site with 8 piggery houses on approximately 4.85 ha. All dead pigs and animal waste generated will be treated at the onsite 1.4ha compost facility and sludge collection dam of approximately 1.3ha.

The biodegradable industrial wastewater (pig manure, urine and wash water) from the facilities will be collected in sumps from where it will be collected with a honey sucker tanker and sprayed onto the agricultural lands (400ha available) as organic fertiliser at the weaner and breeder sites. The biodegradable industrial wastewater at the grower site will be collected in a sump. From the sump the solids will be screened out and the liquid will be pump to an onsite collection pond lined from where it will be reused via irrigation in in accordance with the recommendations for the application of wastewater to agricultural land presented in the prescribed Water Research Commission Guidelines (as detailed under subsection 1.10 of the schedule).

Growing site housing units infrastructure:
Seven piggery houses of 121.5m x 9m with = 1094m^2 and one unit of 58.5m x 9m = 527m^2.

Weaner site housing units infrastructure:
Four piggery houses of 49.5m x 8.5m with = 396m^2.
Breeding site housing units infrastructure:
One piggery house of 80m x 7m with = 440m^2, and
One unit of 80m x 14m = 1120m^2, and
One unit of 175m x 14m = 2450m^2, and
Four units of 80m x 14m = 1120 (4480m^2).
Pond of 50 m x 50 m x 4m deep (10 000m^3)

The property is situated approximately 5km north east of the town Riebeeck Kasteel west of the berg River.

Location alternatives – The property was the only alternative considered. Existing access, the existing piggery operational requirements and infrastructure were all considered when the location of the expansion facilities was taken in consideration on the property. No other location, site or property alternatives were considered as they are not feasible or reasonable due to the fact that the proposed activity is for the expansion of the existing piggery.

Activity alternatives - The activity was the only alternative considered. No other activity alternatives were considered as they are not feasible or reasonable due to the fact that the proposed activity is for the expansion of the existing piggery.

Layout alternatives – Only one design and layout alternative was considered. The existing piggery and the assurance scheme for piggeries in South Africa (Pork 360) provide guidelines for the design of the piggery facilities. The existing piggery infrastructure and its operations restricted the area to where the expanded infrastructure can be developed. No feasible or reasonable layout or design alternative exist as the existing sites development footprint and infrastructure, together with the Pork 360 assurance scheme requirements were used to design the piggery infrastructure proposed for this expansion application. South Africa was challenged with outbreaks of two exotic diseases between 2004 and 2007; namely Classical Swine Fever (CSF) and Porcine Reproductive and Respiratory Disease (PRRS). Eradication of these diseases, especially CSF, cost the government and the South African Pork Producers' Organisation (SAPPO), millions of Rands in compensation to farmers for the culling of thousands of pigs. However, the message is clear: **pig farmers must adhere to minimum biosecurity to prevent diseases entering their farms as it is unlikely that compensation will be paid in future**. SAPPO and pig veterinarians have put much effort into an educational drive to ensure that all piggeries comply with a number of minimum biosecurity measures. SAPPO encouraged SA Veterinary Services to introduce a compartmentalisation system, which is aimed at taking biosecurity to the next level and offering countries importing SA pork & pigs assurance that these products are safe to import. Producers participating in this voluntary scheme are audited by State Veterinarians and have to comply with strict biosecurity measures. The system is already bearing fruit. With the outbreak of foot and mouth disease early in 2011, **the export of all livestock and livestock products were prohibited**. This not only affected the pockets of local livestock producers, but neighbouring countries in southern Africa also suffered, as many of them rely heavily on South Africa as part of their food basket. After negotiations with the government, pork producers participating in SAPPO's compartmentalisation system were allowed to resume exports of pork, clearly demonstrating the benefits of the compartments. The system aims to keep these highly infectious diseases from South African pig herds and is conducted in cooperation with the national animal health authorities. The compartments present a disease-control mechanism and will ensure that in the event of an exotic-disease outbreak in the country the risk of the disease spreading among South African herds is limited. The national veterinary authorities will then also be able to certify the compartments as disease free. This may ensure the continuation of exports[1].

Technology alternatives - No technological alternatives other than duel flush toilet systems and energy efficient lighting and geysers are considered at the facilities. Furthermore, the facility will use technology approved by Pork 360 assurance scheme. Pork 360 certification ensures that producers meet the increasing demand for food safety by retailers and consumers. A further result is that producers save in feed and medicine usage as the intensive monitoring of their production systems

[1] http://www.pork360.co.za/bio-security/

ensures that wastage is avoided and those opportunities for improvement in their production systems are continuously being identified. The expansion planned will include screen to screen out solids at the Grower units and to construct a pond to collect effluent during winter months for disposal as organic fertiliser during summer months on the 400ha available on the farm.

Operational alternatives – The handling and use of the pig manure and urine as organic fertiliser is the only other operational alternatives consider. The expansion planned will include screen to screen out solids at the Grower units and to construct a pond to collect effluent during winter months for disposal as organic fertiliser during summer months on the 400ha available on the farm. The proposed development is an expansion of a piggery and the current operations as for the rest of the facility will continue as is.

The No-Go Option - The No-Go option will result in the site remaining as is presently and the existing piggery will continue as is without the expanded infrastructure. However, the No-Go Option is nevertheless considered and assessed in relation to the potential implications of the proposed project, as required in terms of NEMA and its EIA Regulations.

Impact Summary
The assessment of these impacts before and after recommended mitigation is summarised in the table below. After mitigation, none of the impacts are assessed as being above LOW significance.

Construction phase:
- Disturbance to subsurface geological layers (low impact before mitigation and low impact with mitigation measures);
- Soil erosion and dust - (Low impact before mitigation and low impact with mitigation measures);
- Impact of construction activities on surface and underground water pollution - (High impact before mitigation and low impact with mitigation measures);
- Impact on Drainage Line / Groundwater resources - (High impact before mitigation and low impact with mitigation measures);
- Impact on surrounding and municipal planning policies and guidelines - (low impact before mitigation and low impact with mitigation measures);
- Impact on the indigenous terrestrial flora and habitat present in the area. Impact on the naturally occurring fauna present in the area - (Low impact before mitigation and low impact with mitigation measures);
- Increased jobs - (No impact before mitigation and positive impact with mitigation measures);
- Increased traffic due to the construction activities requiring various vehicles to come onto and leave the site - (Low impact before mitigation and low impact with mitigation measures);
- The potential impact of the proposed development on archaeological, paleontological and heritage remains - (Low impact before mitigation and low impact with mitigation measures);

Operational phase:
- Disposal of biodegradable wastewater - (High impact before mitigation and low impact with mitigation measures);
- Soil erosion and dust - (low impact before mitigation and low impact with mitigation measures);
- Impact of operation activities on surface and underground water pollution - (High impact before mitigation and low impact with mitigation measures);
- Impact on Drainage Line / Groundwater resources - (High impact before mitigation and low impact with mitigation measures);
- Impact on surrounding land use and its potential effect on surrounding environment - (low impact before mitigation and low impact with mitigation measures);
- Impact on the indigenous terrestrial flora and habitat present in the area. Impact on the naturally occurring fauna present in the area - (Low impact before mitigation and low impact with mitigation measures);
- Increased jobs - (No impact before mitigation and positive impact with mitigation measures);
- Increased traffic due to the operation activities requiring various vehicles to come onto and leave the site - (Low impact before mitigation and low impact with mitigation measures);
- The potential impact of the proposed maintenance activities on archaeological, paleontological and heritage remains - (Low impact before mitigation and low impact with mitigation measures);

Decommissioning phase: Similar to impacts associated with construction phase.

SECTION A: PROJECT INFORMATION

1. ACTIVITY LOCATION

Location of all proposed sites:	The property is situated approximately 5km north east of the town Riebeeck Kasteel west of the berg River.
Farm / Erf name(s) and number(s) (including Portions thereof) for each proposed site:	Farm 649 portion 4 Grootverlangen, Malmesbury
Property size(s) in m^2 for each proposed site:	424.4116ha
Development footprint size(s) in m^2:	Expansion of: Breeding site approximately 2.8ha Weaning site approximately 0.5ha Growing site approximately 4.85 ha
Surveyor General (SG) 21 digit code for each proposed site:	C04600000000064900004

2. PROJECT DESCRIPTION

(a) Is the project a new development? If "NO", explain:

~~YES~~	NO

The Piggery is an existing development which is now expanding on its existing operations.

(b) Provide a detailed description of the scope of the proposed development (project).

The expansion of the existing 1000 sow piggery to increase the piggery with another 1000 sows to 2000 sows by expanding the existing breeding site with 6 piggery houses on approximately 2.8ha, the weaning site with two piggery houses on approximately 0.5ha and the growing site with 8 piggery houses on approximately 4.85 ha. All dead pigs and animal waste generated will be treated at the onsite 1.4ha compost facility and sludge collection dam of approximately 1.3ha.

The biodegradable industrial wastewater (pig manure, urine and wash water) from the facilities will be collected in sumps from where it will be collected with a honey sucker tanker and sprayed onto the agricultural lands (400ha available) as organic fertiliser at the weaner and breeder sites. The biodegradable industrial wastewater at the grower site will be collected in a sump. From the sump the solids will be screened out and the liquid will be pump to an onsite collection pond lined from where it will be reused via irrigation in in accordance with the recommendations for the application of wastewater to agricultural land presented in the prescribed Water Research Commission Guidelines (as detailed under subsection 1.10 of the schedule).

Growing site housing units infrastructure:
Seven piggery houses of 121.5m x 9m with = 1094m^2 and one unit of 58.5m x 9m = 527m^2.
Weaner site housing units infrastructure:
Four piggery houses of 49.5m x 8.5m with = 396m^2.
Breeding site housing units infrastructure:
One piggery house of 80m x 7m with = 440m^2, and
One unit of 80m x 14m = 1120m^2, and
One unit of 175m x 14m = 2450m^2, and
Four units of 80m x 14m = 1120 (4480m^2).
Pond of 50 m x 50 m x 4m deep (10 000m^3)

Please note: This description must relate to the listed and specified activities in paragraph (d) below.

(c) Please indicate the following periods that are recommended for inclusion in the environmental authorisation:

(i)	the period within which commencement must occur,	5 years
(ii)	the period for which the environmental authorisation should be granted and the date by which the activity must have been concluded, where the environmental authorisation does not include operational aspects;	10 years
(iii)	the period that should be granted for the non-operational aspects of the environmental authorisation; and	10 years
(iv)	the period that should be granted for the operational aspects of the environmental authorisation.	Unlimited.

Please note: The Department must specify the abovementioned periods, where applicable, in an environmental authorisation. In terms of the period within which commencement must occur, the period must not exceed 10 years and must not be extended beyond such 10 year period, unless the process to amend the environmental authorisation contemplated in regulation 32 is followed.

(d) List all the listed activities triggered and being applied for.

Please note: The onus is on the applicant to ensure that all the applicable listed activities are applied for and assessed as part of the EIA process. Please refer to paragraph (b) above.

EIA Regulations Listing Notices 1 and 3 of 2014 (as amended):

Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 1 (GN No. R. 983)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	The expansion of the piggery infrastructure on agricultural lands surrounding the existing facility.	Expansion and operation
39	The expansion and related operation of facilities for the concentration of animals in densities that will exceed— (i) 20 square metres per large stock unit, where the expansion will constitute more than 500 additional units; (ii) 8 square meters per small	The expansion of the piggery infrastructure next to the existing facility.	Expansion and operation

	stock unit, where the expansion will constitute more than; (a) 1 000 additional units per facility or more excluding pigs where (b) applies; or (b) 250 additional pigs, excluding piglets that are not yet weaned; (iii) 30 square metres per crocodile where the expansion will constitute an additional 20 crocodiles or more; (iv) 3 square metres per rabbit where the expansion will constitute more than 500 additional rabbits; or (v) 250 square metres per ostrich or emu where the expansion will constitute more than 50 additional ostriches or emus.		
Listed Activity No(s):	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 3 (GN No. R. 985)	Describe the portion of the development that relates to the applicable listed activity as per the project description.	Identify if the activity is development / development and operational / decommissioning / expansion / expansion and operational.
NA	NA		

Waste management activities in terms of the NEM: WA (GN No. 921):

Category A Listed Activity No(s):	Describe the relevant Category A waste management activity in writing as per GN No. 921	Describe the portion of the development that relates to the applicable listed activity as per the project description
NA	NA	

Note: If any waste management activities are applicable, the **Listed Waste Management Activities Additional Information Annexure** must be completed and attached to this Basic Assessment Report as **Appendix I.**

Atmospheric emission activities in terms of the NEM: AQA (GN No. 893):

Listed Activity No(s):	Describe the relevant atmospheric emission activity in writing as per GN No. 893	Describe the portion of the development that relates to the applicable listed activity as per the project description.
NA	NA	

(e) Provide details of all components (including associated structures and infrastructure) of the proposed development and attach diagrams (*e.g.,* architectural drawings or perspectives, engineering drawings, process flowcharts, *etc*.).

Buildings Provide brief description below:	YES	~~NO~~
Growing site housing units infrastructure: Seven piggery houses of 121.5m x 9m with = 1094m^2 and one unit of 58.5m x 9m = 527m^2. **Weaner site housing units infrastructure:** Four piggery houses of 49.5m x 8.5m with = 396m^2. **Breeding site housing units infrastructure:** One piggery house of 80m x 7m with = 440m^2, and One unit of 80m x 14m = 1120m^2, and One unit of 175m x 14m = 2450m^2, and Four units of 80m x 14m = 1120 (4480m^2).		
Infrastructure (*e.g.,* roads, power and water supply/ storage) Provide brief description below:	YES	~~NO~~
Existing roads and infrastructure will be used. A lined pond to store liquid generated from the grower		

site of 10 000m³ (size) will be constructed at the grower site in order to collect the liquid during rainy days so that it can be sprayed onto the agricultural lands in summer.		
Processing activities (*e.g.,* manufacturing, storage, distribution) Provide brief description below:	~~YES~~	NO
Storage facilities for raw materials and products (*e.g.,* volume and substances to be stored) Provide brief description below:	~~YES~~	NO
Storage and treatment facilities for effluent, wastewater or sewage: Provide brief description below:	YES	~~NO~~
A lined pond to store liquid generated from the grower site of 10 000m³ (size) will be constructed at the grower site in order to collect the liquid during rainy days so that it can be sprayed onto the agricultural lands in summer.		
Storage and treatment of solid waste Provide brief description below:	YES	~~NO~~
All dead pigs and animal waste generated will be treated at the onsite 1.4ha compost facility and sludge collection dam of approximately 1.3ha.		
Facilities associated with the release of emissions or pollution. Provide brief description below:	~~YES~~	NO
Other activities (*e.g.,* water abstraction activities, crop planting activities) – Provide brief description below:	~~YES~~	NO

3. PHYSICAL SIZE OF THE PROPOSED DEVELOPMENT

(a) Property size(s): Indicate the size of all the properties (cadastral units) on which the development proposal is to be undertaken	424.4116ha	~~m²~~
(b) Size of the facility: Indicate the size of the facility where the development proposal is to be undertaken	Breeding site approximately 2.8ha Weaning site approximately 0.5ha Growing site approximately 4.85 ha	~~m²~~
(c) Development footprint: Indicate the area that will be physically altered as a result of undertaking any development proposal (*i.e.,* the physical size of the development together with all its associated structures and infrastructure)	Breeding site approximately 2.8ha Weaning site approximately 0.5ha Growing site approximately 4.85 ha	~~m²~~
(d) Size of the activity: Indicate the physical size (footprint) of the development proposal	Breeding site approximately 2.8ha Weaning site approximately 0.5ha Growing site approximately 4.85 ha	~~m²~~
(e) For linear development proposals: Indicate the length (L) and width (W) of the development proposal	(L) NA	m
	(W) NA	m

(f) For storage facilities: Indicate the volume of the storage facility	Lined pond (10 000)	m^3
(g) For sewage/effluent treatment facilities: Indicate the volume of the facility (Note: the maximum design capacity must be indicated	Lined pond (10 000)	m^3

4. SITE ACCESS

(a) Is there an existing access road?	YES	~~NO~~
(b) If no, what is the distance in (m) over which a new access road will be built?		m

(c) Describe the type of access road planned:

NA

Please note: The position of the proposed access road must be indicated on the site plan.

5. DESCRIPTION OF THE PROPERTY(IES) ON WHICH THE LISTED ACTIVITY(IES) ARE TO BE UNDERTAKEN AND THE LOCATION OF THE LISTED ACTIVITY(IES) ON THE PROPERTY

5.1 Provide a description of the property on which the listed activity(ies) is/are to be undertaken and the location of the listed activity(ies) on the property, as well as of all alternative properties and locations (duplicate section below as required).

The property is situated approximately 5km north east of the town Riebeeck Kasteel west of the berg River.

Farm 649 portion 4 Grootverlangen, Malmesbury

Farm 649 portion 4 Grootverlangen, Malmesbury is situated approximately 5km north east of the town Riebeeck Kasteel west of the berg River. The expansions of the piggery infrastructure will occur next to the existing breeding, grower and weaner sites on the property.

		Latitude (S): (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec.)		
Coordinates of all the proposed activities on the property or properties (sites):	Site 1	33°	22'	09.5"	18°	59'	09.6"
	Site 2	33°	22 '	37.3"	18°	58'	31.7"
	Site 3	33°	22'	11.8"	18°	58'	21.8"
	Site 4	33°	22'	34.6"	18°	58'	04.2"

Note: For land where the property has not been defined, the coordinates of the area within which the development is proposed must be provided in an addendum to this report.

5.2 Provide a description of the area where the aquatic or ocean-based activity(ies) is/are to be undertaken and the location of the activity(ies) and alternative sites (if applicable).

NA

	Latitude (S): (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
Coordinates of the boundary /perimeter of all proposed aquatic or ocean-based activities (sites) (if applicable):	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"
	°	'	"	°	'	"

5.3 For a linear development proposal, please provide a description and coordinates of the corridor in which the proposed development will be undertaken (if applicable).

NA

For linear activities:	**Latitude (S):** (deg.; min.; sec)			**Longitude (E):** (deg.; min.; sec)		
• Starting point of the activity	°	'	"	°	'	"
• Middle point of the activity	°	'	"	°	'	"
• End point of the activity	°	'	"	°	'	"

Note: For linear development proposals longer than 1000m, please provide an addendum with co-ordinates taken every 250m along the route. All important waypoints must be indicated and the GIS shape file provided digitally.

5.4 Provide a location map (see below) as **Appendix A** to this report that shows the location of the proposed development and associated structures and infrastructure on the property; as well as a detailed site development plan / site map (see below) as **Appendix B** to this report; and if applicable, all alternative properties and locations. The GIS shape files (.shp) for maps / site development plans must be included in the electronic copy of the report submitted to the competent authority.

Locality Map:	The scale of the locality map must be at least 1:50 000. For linear development proposals of more than 25 kilometres, a smaller scale *e.g.*, 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following: • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; • a linear scale; • the prevailing wind direction (during November to April and during May to October); and • GPS co-ordinates (to indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection). For an ocean-based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken. Coordinates must be provided in degrees, minutes and seconds using the Hartebeesthoek94; WGS84 co-ordinate system.

Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following:
	• The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be indicated on the plan, preferably together with a linear scale.
	• The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan.
	• The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be indicated on the site plan.
	• The position of each element of the application as well as any other structures on the site must be indicated on the site plan.
	• Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the development <u>must</u> be indicated on the site plan.
	• Servitudes and an indication of the purpose of each servitude must be indicated on the site plan.
	• Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to):
	  o Watercourses / Rivers / Wetlands - including the 32 meter set back line from the edge of the bank of a river/stream/wetland;
	  o Flood lines (*i.e.,* 1:100 year, 1:50 year and 1:10 year where applicable;
	  o Ridges;
	  o Cultural and historical features;
	  o Areas with indigenous vegetation (even if degraded or infested with alien species).
	• Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted.
	• North arrow
	
	A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.
	
	The GIS shape file for the site development plan(s) must be submitted digitally.

6. SITE PHOTOGRAPHS

Colour photographs of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached as **Appendix C** to this report. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.

SECTION B: DESCRIPTION OF THE RECEIVING ENVIRONMENT

Site/Area Description

For linear development proposals (pipelines, *etc*.) as well as development proposals that cover very large sites, it may be necessary to complete copies of this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area that is covered by each copy on the Site Plan.

1. GRADIENT OF THE SITE

Indicate the general gradient of the sites (highlight the appropriate box).

ALL SITES

Flat	~~Flatter than 1:10~~	~~1:10 – 1:4~~	~~Steeper than 1:4~~

2. LOCATION IN LANDSCAPE

(a) Indicate the landform(s) that best describes the site (highlight the appropriate box(es).

~~Ridgeline~~	~~Plateau~~	~~Side slope of hill / mountain~~	~~Closed valley~~	Open valley	~~Plain~~	~~Undulating plain/low hills~~	~~Dune~~	~~Sea front~~

(b) Provide a description of the location in the landscape.

The site is located in the Riebeek valley with the Berg River on its eastern border.

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

(a) Is the site(s) located on or near any of the following (highlight the appropriate boxes)?

Shallow water table (less than 1.5m deep)	~~YES~~	NO	~~UNSURE~~
Seasonally wet soils (often close to water bodies)	~~YES~~	NO	~~UNSURE~~
Unstable rocky slopes or steep slopes with loose soil	~~YES~~	NO	~~UNSURE~~
Dispersive soils (soils that dissolve in water)	~~YES~~	NO	~~UNSURE~~
Soils with high clay content	~~YES~~	NO	~~UNSURE~~
Any other unstable soil or geological feature	~~YES~~	NO	~~UNSURE~~
An area sensitive to erosion	~~YES~~	NO	~~UNSURE~~
An area adjacent to or above an aquifer.	YES	~~NO~~	~~UNSURE~~
An area within 100m of a source of surface water	YES	NO	~~UNSURE~~
An area within 500m of a wetland	YES	~~NO~~	~~UNSURE~~
An area within the 1:50 year flood zone	~~YES~~	NO	~~UNSURE~~
A water source subject to tidal influence	~~YES~~	NO	~~UNSURE~~

According To the Aquifer Classification of South Africa[2] the underlying area represents the minor aquifer region which is a moderately-yielding aquifer system of variable water quality.

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (Information in respect of the above will often be available at the planning sections of local authorities. The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

(c) Indicate the type of geological formation underlying the site.

~~Granite~~	Shale	~~Sandstone~~	~~Quartzite~~	~~Dolomite~~	~~Dolorite~~	Other (describe)
Provide a description.						

[2] http://www.dwa.gov.za/Groundwater/documents/Aquifer%20Classification.pdf

Soil
Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low-lying soils.

Geology:
Mainly greywacke, shale, schist and phyllite of the Porterville and Moorreesburg Formations, Malmesbury Group, as well as conglomerate, grit and sandstone of the Magrug Formation, Klipheuwel Group; occasional alluvium.
Source: Soils and Geology ENPAT, CapeFarmMapper, 17 January 2018.

4. SURFACE WATER

(a) Indicate the surface water present on and or adjacent to the site and alternative sites (highlight the appropriate boxes)?

Perennial River	YES	~~NO~~	~~UNSURE~~
Non-Perennial River	YES	~~NO~~	~~UNSURE~~
Permanent Wetland	~~YES~~	NO	~~UNSURE~~
Seasonal Wetland	YES	~~NO~~	~~UNSURE~~
Artificial Wetland	~~YES~~	~~NO~~	~~UNSURE~~
Estuarine / Lagoon	~~YES~~	~~NO~~	~~UNSURE~~

(b) Provide a description.

The Berg river can be located adjacent to the development site and is approximately 294 km long with a catchment area of 7,715 km² and outlets into the Atlantic ocean. About 65% of the Berg River area is under agriculture. The Berg River is approximately 300 m east of the closest site (breeder site). A Non perennial river, which is a tributary of the Berg River, is approximately 66m from the newly to be constructed pond at the grower site.

5. THE SEAFRONT / SEA

(a) Is the site(s) located within any of the following areas? (highlight the appropriate boxes).
If the site or alternative site is closer than 100m to such an area, please provide the approximate distance in (m).

AREA	YES	NO	UNSURE	If "YES": Distance to nearest area (m)
An area within 100m of the high water mark of the sea	~~YES~~	NO	~~UNSURE~~	
An area within 100m of the high water mark of an estuary/lagoon	~~YES~~	NO	~~UNSURE~~	
An area within the littoral active zone	~~YES~~	NO	~~UNSURE~~	
An area in the coastal public property	~~YES~~	NO	~~UNSURE~~	
Major anthropogenic structures	~~YES~~	NO	~~UNSURE~~	
An area within a Coastal Protection Zone	~~YES~~	NO	~~UNSURE~~	
An area seaward of the coastal management line	~~YES~~	NO	~~UNSURE~~	
An area within the high risk zone (20 years)	~~YES~~	NO	~~UNSURE~~	
An area within the medium risk zone (50 years)	~~YES~~	NO	~~UNSURE~~	
An area within the low risk zone (100 years)	~~YES~~	NO	~~UNSURE~~	
An area below the 5m contour	~~YES~~	NO	~~UNSURE~~	
An area within 1km from the high water mark of the sea	~~YES~~	NO	~~UNSURE~~	
A rocky beach	~~YES~~	NO	~~UNSURE~~	
A sandy beach	~~YES~~	NO	~~UNSURE~~	

(b) If any of the answers to the above is "YES" or "UNSURE", specialist input may be requested by the Department. (The 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

6. BIODIVERSITY

Note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed development. To assist with the identification of the biodiversity

occurring on site and the ecosystem status, consult http://bgis.sanbi.org or BGIShelp@sanbi.org . Information is also available on compact disc ("cd") from the Biodiversity-GIS Unit, Tel.: (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) must be provided as an overlay map on the property/site plan as **Appendix D** to this report.

(a) Highlight the applicable biodiversity planning categories of all areas on preferred and alternative sites and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category. Also describe the prevailing level of protection of the Critical Biodiversity Area ("CBA") and Ecological Support Area ("ESA") (how many hectares / what percentages are formally protected).

Systematic Biodiversity Planning Category	~~CBA~~	~~ESA~~	~~Other Natural Area ("ONA")~~	No Natural Area Remaining ("NNR")
If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan and the conservation management objectives	**NA**			
Describe the site's CBA/ESA quantitative values (hectares/percentage) in relation to the prevailing level of protection of CBA and ESA (how many hectares / what percentages are formally protected locally and in the province)	**NA**			

(b) Highlight and describe the habitat condition on site.

Habitat Condition	**Percentage of habitat condition class (adding up to 100%) and area of each in square metre (m^2)**		**Description and additional comments and observations (including additional insight into condition, *e.g.* poor land management practises, presence of quarries, grazing/harvesting regimes, *etc.*)**
Natural	0%	m^2	
Near Natural (includes areas with low to moderate level of alien invasive plants)	0%	m^2	
Degraded (includes areas heavily invaded by alien plants)	0%	m^2	
Transformed (includes cultivation, dams, urban, plantation, roads, *etc.*)	100%	m^2	All newly constructed infrastructure will be on ploughed agricultural lands.

(c) Complete the table to indicate:
(i) the type of vegetation present on the site, including its ecosystem status; and
(ii) whether an aquatic ecosystem is present on/or adjacent to the site.

Terrestrial Ecosystems		**Description of Ecosystem, Vegetation Type, Original Extent, Threshold (ha, %), Ecosystem Status**
Ecosystem threat status as per the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	~~Critically~~	NA
	~~Endangered~~	NA
	~~Vulnerable~~	NA
	~~Least Threatened~~	NA

Aquatic Ecosystems		
Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)	~~Estuary~~	~~Coastline~~

~~YES~~	NO	~~UNSURE~~	~~YES~~	NO	~~YES~~	NO

(d) Provide a description of the vegetation type and/or aquatic ecosystem present on the site, including any important biodiversity features/information identified on the site (e.g. threatened species and special habitats). Clearly describe the biodiversity targets and management objectives in this regard.

The development site vegetation type used to be Swartland Shale Renosterveld.

7. LAND USE OF THE SITE

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

~~Untransformed area~~	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/consulting room~~	~~Military or police base/station/compound~~	~~Casino/entertainment complex~~	~~Tourism and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/medical centre~~	~~School~~	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes and more)~~	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	Agriculture	~~River, stream or wetland~~	~~Nature conservation area~~
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
Other land uses (describe):	NA			

(a) Provide a description.

The site and farm is existing piggery and ploughed lands. The expansion areas of the sites will be all on ploughed agricultural lands.

8. LAND USE CHARACTER OF THE SURROUNDING AREA

(a) Highlight the current land uses and/or prominent features that occur within +/- 500m radius of the site and neighbouring properties if these are located beyond 500m of the site.

Note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed development.

~~Untransformed area~~	~~Low density residential~~	~~Medium density residential~~	~~High density residential~~	~~Informal residential~~
~~Retail~~	~~Commercial & warehousing~~	~~Light industrial~~	~~Medium industrial~~	~~Heavy industrial~~
~~Power station~~	~~Office/consulting room~~	~~Military or police base/station/compound~~	~~Casino/entertainment complex~~	~~Tourism and Hospitality facility~~
~~Open cast mine~~	~~Underground mine~~	~~Spoil heap or slimes dam~~	~~Quarry, sand or borrow pit~~	~~Dam or reservoir~~
~~Hospital/medical centre~~	~~School~~	~~Tertiary education facility~~	~~Church~~	~~Old age home~~
~~Sewage treatment plant~~	~~Train station or shunting yard~~	~~Railway line~~	~~Major road (4 lanes and more)~~	~~Airport~~
~~Harbour~~	~~Sport facilities~~	~~Golf course~~	~~Polo fields~~	~~Filling station~~
~~Landfill or waste treatment site~~	~~Plantation~~	~~A~~griculture	River, stream or wetland	~~Nature conservation area~~
~~Mountain, koppie or ridge~~	~~Museum~~	~~Historical building~~	~~Graveyard~~	~~Archaeological site~~
Other land uses (describe):	NA			

(b) Provide a description, including the distance and direction to the nearest residential area, industrial area, agri-industrial area.

Riebeek Wes is situated approximately 6.2 km west of the farm.

9. SOCIO-ECONOMIC ASPECTS

a) Describe the existing social and economic characteristics of the community in the vicinity of the proposed site, in order to provide baseline information (for example, population characteristics/demographics, level of education, the level of employment and unemployment in the area, available work force, seasonal migration patterns, major economic activities in the local municipality, gender aspects that might be of relevance to this project, *etc.*).

Municipal Area:

The piggery expansion is located east of the town Riebeek Kasteel and falls under the jurisdiction of the West Coast District Municipality within the Swartland is a Local Municipality . The West Coast District Municipality covers an approximate area of 31.119 km^2. The Swartland Municipality covers a total area of approximately 3.700 km^2.

Population:
Swartland includes the towns of Malmesbury, Moorreesburg, Darling, Yzerfontein, Riebeek West, Riebeek Kasteel, Koringberg, Ruststasie, Ongegund, Riverlands, Chatsworth, Kalbaskraal and Abbotsdale as well as the rural areas adjacent to and between these towns. 78% of the persons in the Swartland area are Afrikaans speaking and 12.34% isiXhosa speaking.

Socio-Economics:
The Swartland Municipality, is committed to the social and economic development of the people in the area, unemployment and a lack of skills development continue to be one of the biggest problems faced in the Swartland area. As reported in the Swartland Municipality Annual Report 2016/17. The average unemployment rate in the West Coast district is 14.5%.

Robertson households receive fairly good municipal services and most of the households use electricity for heating, cooking and lighting. The provision of low cost housing continues to be a major challenge for the municipality. If housing backlogs are to be addressed meaningfully, the rate and quantity of housing developments must be increased.

Tourism Opportunities:
There is a great deal of tourism opportunities for the Swartland Municipality such as the growth of towns/ Service Centres where Malmesbury is focused as regional, Moorreesburg as agricultural and Darling as agricultural and agri-tourism) centre.

10. HISTORICAL AND CULTURAL ASPECTS

(a) Please be advised that if section 38 of the NHRA is applicable to your proposed development, you are requested to furnish this Department with written comment from Heritage Western Cape as part of your public participation process. Heritage Western Cape must be given an opportunity, together with the rest of the I&APs, to comment on any Pre-application BAR, a Draft BAR, and Revised BAR.

Section 38 of the NHRA states the following:
"*38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-*
(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000m^2 in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000m^2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development".

(b) The impact on any national estate referred to in section 3(2), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii), of the NHRA, must also be investigated, assessed and evaluated. Section 3(2) states the following:
"3(2) Without limiting the generality of subsection (1), the national estate may include—
(a) places, buildings, structures and equipment of cultural significance;
(b) places to which oral traditions are attached or which are associated with living heritage;
(c) historical settlements and townscapes;
(d) landscapes and natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and palaeontological sites;
(g) graves and burial grounds, including—
(i) ancestral graves;
(ii) royal graves and graves of traditional leaders;
(iii) graves of victims of conflict;
(iv) graves of individuals designated by the Minister by notice in the Gazette;
(v) historical graves and cemeteries; and
(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
(h) sites of significance relating to the history of slavery in South Africa;
(i) movable objects, including—
(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
(ii) objects to which oral traditions are attached or which are associated with living heritage;
(iii) ethnographic art and objects;
(iv) military objects;
(v) objects of decorative or fine art;
(vi) objects of scientific or technological interest; and
(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)".

Is Section 38 of the NHRA applicable to the proposed development?	YES	~~NO~~	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), is applicable to the proposed development as the re zoning of the site exceeds 10 000 m^2 in extent. No archaeologically significant resources were found during the foot survey. The development will not impact on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 or impact on any building or structure older than 60 years in any way.		
Will the development impact on any national estate referred to in Section 3(2) of the NHRA?	~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA		
Will any building or structure older than 60 years be affected in any way?	~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA		
Are there any signs of culturally or historically significant elements, as defined in section 2 of the NHRA, including Archaeological or paleontological sites, on or close (within 20m) to the site?	~~YES~~	NO	~~UNCERTAIN~~
If YES or UNCERTAIN, explain:	NA		

Note: If uncertain, the Department may request that specialist input be provided **and** Heritage Western Cape must provide comment on this aspect of the proposal. (Please note that a copy of the comments obtained from the Heritage Resources Authority must be appended to this report as Appendix E1).

11. APPLICABLE LEGISLATION, POLICIES, CIRCULARS AND/OR GUIDELINES

(a) Identify all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to the development proposal and associated listed activity(ies) being applied for and that have been considered in the preparation of the BAR.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	**ADMINISTERING AUTHORITY and how it is relevant to this application**	**TYPE Permit/license/authorisation/comment / relevant consideration** (*e.g.* rezoning or consent use, building plan approval, Water Use License and/or General Authorisation, License in terms of the SAHRA and CARA, coastal discharge permit, *etc.*)	**DATE** (if already obtained)**:**
National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA] and relevant regulations	Western Cape Department of Environmental Affairs and Development Planning	Environmental Authorisation Application	N/A
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [NEMWA] and relevant regulations	Western Cape Department of Environmental Affairs and Development Planning	N/A	N/A
National Environmental Management: Biodiversity Act 10 of 2004 [NEMBA]	Western Cape Department of Environmental Affairs and Development Planning	N/A	N/A
National Environmental Management: Air Quality Act, 39 of 2004 [NEMAQA] and Relevant Regulations	Western Cape Department of Environmental Affairs and Development Planning	N/A	N/A
National Water Act, 1998 (Act No. 36 of 1998) [NWA] and relevant regulations	Department of Water Affairs	Water Use Authorization	N/A
Conservation of Agricultural Resources Act, 43 of 1983 [CARA]	National Department of Agriculture, forestry and Fisheries Western Cape Department of Agriculture	N/A	N/A
National Health Act, 61of 2003 [NHA]		N/A	N/A
Constitution of the Republic of South Africa, 1996 [CRSA]		General application of individual rights of all on and adjacent to the sites	N/A
National Building Regulations and Building Standards Act 103 of 1977 [NBRBSA] and relevant regulations		N/A	N/A
National Heritage Resources Act 25 of 1999 [NHRA]	Heritage Western Cape South African Heritage Resource Agency	NID	In progress
National Veld and Forest Fire Act 101 of 1998 [NVFFA]		N/A	N/A
Fertilizers, Farm Feeds, Agricultural Remedies And Stock Remedies Act, 36 Of 1947 [FFFARSRA]	National Department of Agriculture, forestry and Fisheries Western Cape	N/A	N/A

and Relevant Regulations	Department of Agriculture		
Section 42 of Spatial Planning and Land Use Management Act (16 of 2013) ("SPLUMA")	Swartland Municipality	Consent Use.	N/A
Western Cape Land Use Planning Act, 2014 ("LUPA")	Swartland Municipality	Consent Use.	N/A

(b) Describe how the proposed development **complies with and responds** to the legislation and policy context, plans, guidelines, spatial tools, municipal development planning frameworks and instruments.

LEGISLATION, POLICIES, PLANS, GUIDELINES, SPATIAL TOOLS, MUNICIPAL DEVELOPMENT PLANNING FRAMEWORKS, AND INSTRUMENTS	**Describe how the proposed development complies with and responds:**
NEMA	Various general activities, including but not limited to, the control of emergency incidents and the care and remediation of environmental damage.
NEMWA	Listed waste management activities and the requirements for a license for usage of general waste.
NEMBA	The management and conservation of biological diversity and the sustainable use of indigenous biological resources.
NEMAQA	Activities that may affect the air quality on site and the environment surrounding it.
NWA	Impacts and pollution to ground and surface water. A water use authorisation under section 21 is required.
CARA	Weeds and the tolerance thereof.
National Health Act	Littering and causing a nuisance.
Constitution of the RSA	General application to individual rights of all on and adjacent to the sites.
National Building Regulations and Building Standards Act	The erection of new buildings.
NHRA	Development of the site and dealing with graves and burial sites and any structures older than 60 years.
NVFFA	Any activities that could result in the start of veld fires.
FFFARSRA	• Activities associated with pest control and the use of agricultural remedies. • Activities associated with providing / manufacturing fertiliser.
Guideline on Public Participation	The public participation guideline was used to determine the best way to define and inform all relevant I&APs of the project. The guideline was also used to determine the most effective communication strategies for public participation.
Guidelines on Alternatives	The guidelines for alternatives assessment was used to develop a methodology for alternatives assessment. This methodology was applied to determine and assess the most viable alternatives to the project. The assessment was undertaken against the base environment (i.e. the no-go option).
Guideline on Need and desirability	The guideline was taken into account to determine whether the project complied according to the concept of Best Practicable Environmental Option as well as environmental and social sustainability.
Guideline for EMP's	The guideline for EMP's was taken into account to determine the most effective minimize, mitigation and management measures to minimise or prevent the impacts identified in the report

Note: Copies of any comments, permit(s) or licences received from any other Organ of State must be attached to this report as **Appendix E**.

Section C: PUBLIC PARTICIPATION

The PPP must fulfil the requirements outlined in the NEMA, the EIA Regulations, 2014 (as amended) and if applicable, the NEM: WA and/or the NEM: AQA. This Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must also be taken into account.

1. Please highlight the appropriate box to indicate whether the specific requirement was undertaken or whether there was an exemption applied for.

In terms of Regulation 41 of the EIA Regulations, 2014 (as amended) -			
(a) fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -			
(i) the site where the activity to which the application relates, is or is to be undertaken; and	YES	~~EXEMPTION~~	
(ii) any alternative site	YES	~~EXEMPTION~~	~~N/A~~
(b) giving written notice, in any manner provided for in Section 47D of the NEMA, to –			
(i) the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	~~YES~~	~~EXEMPTION~~	N/A
(ii) owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	~~EXEMPTION~~	
(iii) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;	YES	~~EXEMPTION~~	
(iv) the municipality (Local and District Municipality) which has jurisdiction in the area;	YES	~~EXEMPTION~~	
(v) any organ of state having jurisdiction in respect of any aspect of the activity; and	YES	~~EXEMPTION~~	
(vi) any other party as required by the Department;	YES	~~EXEMPTION~~	~~N/A~~
(c) placing an advertisement in -			
(i) one local newspaper; or	YES	~~EXEMPTION~~	
(ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	~~YES~~	~~EXEMPTION~~	N/A
(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken	YES	~~EXEMPTION~~	~~N/A~~
(e) using reasonable alternative methods, as agreed to by the Department, in those instances where a person is desirous of but unable to participate in the process due to— (i) illiteracy; (ii) disability; or (iii) any other disadvantage.	YES	~~EXEMPTION~~	~~N/A~~
If you have indicated that "EXEMPTION" is applicable to any of the above, proof of the exemption decision must be appended to this report.			
Please note that for the NEM: WA and NEM: AQA, a notice must be placed in at least two newspapers circulating in the area where the activity applied for is proposed.			
If applicable, has/will an advertisement be placed in at least two newspapers?	~~YES~~	NO	
If "NO", then proof of the exemption decision must be appended to this report.			

2. Provide a list of all the State Departments and Organs of State that were consulted:

State Department / Organ of State	Date request was sent:	Date comment received:	Support / not in support
CapeNature	A copy of this report will be sent to these state Departments / organs of state.	NA	NA
Department of Agriculture			
Heritage Western Cape			
Department of Water Affairs			
West Coast District Municipality			
Swartland Municipality			
Department of Health			
DEA&DP Waste Management			
DEA&DP Pollution and Chemicals Management			

3. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated, or the reasons for not including them.
(The detailed outcomes of this process, including copies of the supporting documents and inputs must be included in a Comments and Response Report to be attached to the BAR (see note below) as **Appendix F**).

DEA&DP: Waste Management
Based on the information received and subsequent telephonic conversation with Ms LR Abrahams, it is understood that the quantities that will be composted will not trigger the Category A listed Activity 3 (6), *'The treatment of general waste using any form of treatment at a facility that has the capacity to treat in* excess *of 10 tons but less than 100 tons'* as contained in Government Notice No. 921 of 29 November 2013, *'The list of waste management activities that have,* or *are likely to have a detrimental effect on the environment'*.

Heritage Western Cape
You are hereby notified that, since there is no reason to believe that the proposed expansion of the existing 1000 sow piggery to 2000 sows by expanding the existing breed on Farm Portion 649 and Portion 4 of Farm 649, will not impact on heritage resources, no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required. However, should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately and Heritage Western Cape must be notified without delay?

Mr Alexander Mettenhiember, registered I&AP
When the current piggery aires the existing facilities an enormous smell from fills the air in the Valley, in particular when the wind blows from the southern direction.

An increase in the facility will increase the smell. Further I cannot judge and submit for your consideration the impact and handling of the CO2 output of further 1000 sows.

Furthermore the traffic to and from the piggery will be a burden on the gravel road from Riebeek Kasteel to Voëlvlei Dam. The rock bed of this road is severely damaged already and would need reinforcement. or to the road from Rooihoogte to the R46.On both grounds I object to the expansion.

4. Provide a summary of any conditional aspects identified / highlighted by any Organs of State, which have jurisdiction in respect of any aspect of the relevant activity.

DEA&DP:Waste Management
Kindly note, should the composting activity increase to treat quantities of waste greater than 10 tons/day, a waste management license is required prior to the composting taking place. It is an offence in terms of section 20 (b) of the NEM: WA for a person to commence, undertake or conduct a waste management activity, except in accordance with *a* Waste Management License issued in respect of that activity, if a License is required. Failure to comply with the requirements of section 20 (b) of the NEM: WA will result in the matter being referred to the Directorate: Environmental Governance of this Department. A person convicted of an offence in terms of the above is liable to a fine not exceeding R 10 million or to imprisonment for a period not exceeding 10 years, or to both such fine and imprisonment.

Heritage Western Cape
Should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must be stopped immediately and Heritage Western Cape must be notified without delay?

Note:
Even if pre-application public participation is undertaken as allowed for by Regulation 40(3), it must be undertaken in accordance with the requirements set out in Regulations 3(3), 3(4), 3(8), 7(2), 7(5), 19, 40, 41, 42, 43 and 44.

If the "exemption" option is selected above and no proof of the exemption decision is attached to this BAR, the application will be refused.

A list of all the potential I&APs, including the Organs of State, notified and a list of all the registered I&APs must be submitted with the BAR. The list of registered I&APs must be opened, maintained and made available to any person requesting access to the register in writing.

The BAR must be submitted to the Department when being made available to I&APs, including the relevant Organs of State and State Departments which have jurisdiction with regard to any aspect of the activity, for a commenting period of at least 30 days. Unless agreement to the contrary has been reached between the Competent Authority and the EAP, the EAP will be responsible for the consultation with the relevant State Departments in terms of Section 24O and Regulation 7(2) – which consultation must happen simultaneously with the consultation with the I&APs and other Organs of State.

All the comments received from I&APs on the BAR must be recorded, responded to and included in the Comments and Responses Report included as **Appendix F** of the BAR. If necessary, any amendments made in response to comments received must be effected in the BAR itself. The Comments and Responses Report must also include a description of the PPP followed.

The minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded, must also be submitted as part of the public participation information to be attached to the final BAR as **Appendix F.**

Proof of all the notices given as indicated, as well as notice to I&APs of the availability of the Pre-Application BAR (if applicable), Draft BAR, and Revised BAR (if applicable) must be submitted as part of the public participation information to be attached to the BAR as **Appendix F**. In terms of the required "proof" the following must be submitted to the Department:

- a site map showing where the site notice was displayed, a dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
  - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
  - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
  - if a facsimile was sent, a copy of the facsimile report;
  - if an electronic mail was sent, a copy of the electronic mail sent; and
  - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION D: NEED AND DESIRABILITY

Note: Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website: **http://www.westerncape.gov.za/eadp**). In this regard, it must be noted that the *Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2010* published by the national Department of Environmental Affairs on 20 October 2014 (GN No. 891 on Government Gazette No. 38108 refers) (available at: http://www.gov.za/sites/www.gov.za/files/38108__891.pdf) also applied to EIAs in terms of the EIA Regulations, 2014 (as amended).

1. Is the development permitted in terms of the property's existing land use rights?	~~YES~~	NO	Please explain
Consent use zoning from agriculture 1 for the expansion areas required.			
2. Will the development be in line with the following?			
(a) Provincial Spatial Development Framework ("**PSDF**").	YES	~~NO~~	Please explain
Expansion of existing piggery on agricultural land.			
(b) Urban edge / edge of **built environment** for the area.	~~YES~~	NO	Please explain
Falls outside urban edge on agricultural property.			
(c) Integrated Development Plan and Spatial Development Framework of the Local Municipality (*e.g.*, would the approval of this application compromise the integrity of the existing approved and credible municipal **IDP and SDF**?).	YES	~~NO~~	Please explain
Expansion of existing piggery on farm.			
(d) An Environmental Management Framework ("**EMF**") adopted by this Department. (*e.g.*, Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	~~NO~~	Please explain
No EMF adopted for the area			
(e) Any **other** Plans (*e.g.*, Integrated Waste Management Plan (for waste management activities), *etc.*)).	~~YES~~	NO	~~Please explain~~
NA			
3. Is the land use (associated with the project being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (in other words, is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	~~NO~~	Please explain

Expansion of existing piggery on farm.			
4. Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur on the proposed site at this point in time?	YES	~~NO~~	Please explain
Expansion of existing piggery on farm.			
5. Does the community/area need the project and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (*e.g.,* development is a National Priority, but within a specific local context it could be inappropriate.)	YES	~~NO~~	Please explain
Expansion of existing piggery on farm in order to provide in food security.			
6. Are the necessary **services** available together with adequate unallocated municipal capacity (at the time of application), or must additional capacity be created to cater for the project? (Confirmation by the relevant municipality in this regard must be attached to the BAR as **Appendix E**.)	YES	~~NO~~	Please explain
No external services required. Water allocation in terms of existing WUA out of Berg River.			
7. Is this project provided for in the **infrastructure planning** of the municipality and if not, what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant municipality in this regard must be attached to the BAR as **Appendix E**.)	~~YES~~	NO	Please explain
NA			
8. Is this project part of a **national programme** to address an issue of national concern or importance?	YES	~~NO~~	Please explain
NA			
9. Do location factors favour this land use (associated with the development proposal and associated listed activity(ies) applied for) at this place? (This relates to the contextualisation of the proposed land use on the proposed site within its broader context.)	YES	~~NO~~	Please explain
Expansion of existing piggery on agricultural land.			
10. Will the development proposal or the land use associated with the development proposal applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	~~YES~~	NO	Please explain
Expansion of existing piggery on agricultural land.			
11. Will the development impact on people's health and well-being (*e.g.,* in terms of noise, odours, visual character and 'sense of place', *etc.*)?	~~YES~~	NO	Please explain
Expansion of existing piggery on agricultural land. The proposed expansion will not increase odours or any possible health impacts and impacts on people well-being. The expansion will in fact result in improved management from the existing operations and should improve the odours or the impacts will stay similar.			
12. Will the proposed development or the land use associated with the proposed development applied for, result in unacceptable opportunity costs?	~~YES~~	NO	Please explain
Expansion of existing piggery on agricultural land.			
13. What will the **cumulative impacts** (positive and negative) of the proposed land use associated with the development proposal and associated listed activity(ies) applied for, be?			
Increase in trip generations, pig manure and urine to be spread as organic fertiliser and increase water usage.			
14. Is the development the **best practicable environmental option** for this land/site?	YES	~~NO~~	Please explain
Expansion of existing piggery on agricultural land.			
15. What will the benefits be to society in general and to the local communities?			Please explain
Job security and production of food to help with food security.			
16. Any **other** need and desirability considerations related to the proposed development?			Please explain
None anticipated.			
17. Describe how the **general objectives of Integrated Environmental Management** as set out in Section 23 of the NEMA have been taken into account:			
The general objectives of Integrated Environmental Management were taken into account by considering all the potential negative and positive impacts of the proposed project on both the biophysical and socio-economic environments. In order to avoid potentially significant impacts, specialist inputs were obtained in relation to terrestrial and aquatic ecology. Based on the findings of the specialist studies a number of recommendations / mitigation measures have been identified for consideration in further project design and implementation. The public and authorities will be given adequate opportunity to comment on the proposed project and to participate in the Basic Assessment Process.			
18 Describe how the **principles of environmental management** as set out in Section 2 of the NEMA have been taken into account:			
All decisions during the planning and assessment by all involved for the activity promote the integration of the principles of environmental management set out in section 2 to minimize and			

mitigate any significant effect on the environment. All these mitigations and management measures are included and written into the EMP.

All involved in the planning and design identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage. The risks, consequences, alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management set out in section 2 were taken into consideration and used in the assessments, mitigations and recommendations throughout this report.

Specialists involved in the planning and design of the activity are independent and ensure that the effects of the activities on the environment receive adequate consideration before recommendations and actions are taken for inclusion in the EA conditions and EMP.

Adequate and appropriate opportunity for public participation will be provided and included in Appendix F as per the guidelines and regulations in decisions that may affect the environment. The consideration of environmental attributes in management and decision making which may have a significant effect on the environment was ensured. The modes of environmental management best suited to ensuring that a particular activity is pursued in accordance with the principles of environmental management set out in section 2 were identified and employed. Refer to the section below.

SECTION E: DETAILS OF ALL THE ALTERNATIVES CONSIDERED

Note: Before completing this section, first consult this Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "One Environmental Management System" and the EIA Regulations, 2014 (as amended), any subsequent Circulars, and guidelines available on the Department's website **http://www.westerncape.gov.za/eadp**.

The EIA Regulations, 2014 (as amended) defines "*alternatives*" as " *in relation to a proposed activity, means different means of fulfilling the general purpose and requirements of the activity, which may include alternatives to the—*
(a) property on which or location where the activity is proposed to be undertaken;
(b) type of activity to be undertaken;
(c) design or layout of the activity;
(d) technology to be used in the activity; or
(e) operational aspects of the activity;
(f) and includes the option of not implementing the activity;"

The NEMA (section 24(4)(a) and (b) of the NEMA, refers) prescribes that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment must, *inter alia*, with respect to every application for environmental authorisation –

- ensure that the general objectives of integrated environmental management laid down in the NEMA and the National Environmental Management Principles set out in the NEMA are taken into account; and
- include an investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity.

The general objective of integrated environmental management (section 23 of NEMA, refers) is, *inter alia*, to "*identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management*" set out in the NEMA.

The identification, evaluation, consideration and comparative assessment of alternatives directly relate to the management of impacts. Related to every identified impact, alternatives, modifications or changes to the activity must be identified, evaluated, considered and comparatively considered to:

- in terms of negative impacts, firstly avoid a negative impact altogether, or if avoidance is not possible alternatives to better mitigate, manage and remediate a negative impact and to compensate for/offset any impacts that remain after mitigation and remediation; and
- in terms of positive impacts, maximise impacts.

1. DETAILS OF THE IDENTIFIED AND CONSIDERED ALTERNATIVES AND INDICATE THOSE ALTERNATIVES THAT WERE FOUND TO BE FEASIBLE AND REASONABLE

Note: A full description of the investigation of alternatives must be provided and motivation if no reasonable or feasible alternatives exists.

(a) Property and **location/site** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The property was the only alternative considered. Existing access, the existing piggery operational requirements and infrastructure were all considered when the location of the expansion facilities was taken in consideration on the property. No other location, site or property alternatives were considered as they are not feasible or reasonable due to the fact that the proposed activity is for the expansion of the existing piggery.

(b) **Activity** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The activity was the only alternative considered. No other activity alternatives were considered as they are not feasible or reasonable due to the fact that the proposed activity is for the expansion of the existing piggery.

(c) **Design or layout** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

Only one design and layout alternative was considered. The existing piggery and the assurance scheme for piggeries in South Africa (Pork 360) provide guidelines for the design of the piggery facilities. The existing piggery infrastructure and its operations restricted the area to where the expanded infrastructure can be developed. No feasible or reasonable layout or design alternative exist as the existing sites development footprint and infrastructure, together with the Pork 360 assurance scheme requirements were used to design the piggery infrastructure proposed for this expansion application. South Africa was challenged with outbreaks of two exotic diseases between 2004 and 2007; namely Classical Swine Fever (CSF) and Porcine Reproductive and Respiratory Disease (PRRS). Eradication of these diseases, especially CSF, cost the government and the South African Pork Producers' Organisation (SAPPO), millions of Rands in compensation to farmers for the culling of thousands of pigs. However, the message is clear: **pig farmers must adhere to minimum biosecurity to prevent diseases entering their farms as it is unlikely that compensation will be paid in future**. SAPPO and pig veterinarians have put much effort into an educational drive to ensure that all piggeries comply with a number of minimum biosecurity measures. SAPPO encouraged SA Veterinary Services to introduce a compartmentalisation system, which is aimed at taking biosecurity to the next level and offering countries importing SA pork & pigs assurance that these products are safe to import. Producers participating in this voluntary scheme are audited by State Veterinarians and have to comply with strict biosecurity measures. The system is already bearing fruit. With the outbreak of foot and mouth disease early in 2011, **the export of all livestock and livestock products were prohibited**. This not only affected the pockets of local livestock producers, but neighbouring countries in southern Africa also suffered, as many of them rely heavily on South Africa as part of their food basket. After negotiations with the government, pork producers participating in SAPPO's compartmentalisation system were allowed to resume exports of pork, clearly demonstrating the benefits of the compartments. The system aims to keep these highly infectious diseases from South African pig herds and is conducted in cooperation with the national animal health authorities. The compartments present a disease-control mechanism and will ensure that in the event of an exotic-disease outbreak in the country the risk of the disease spreading among South African herds is limited. The national veterinary authorities will then also be able to certify the compartments as disease free. This may ensure the continuation of exports[3].

(d) **Technology** alternatives (*e.g.,* to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

[3] http://www.pork360.co.za/bio-security/

No technological alternatives other than duel flush toilet systems and energy efficient lighting and geysers are considered at the facilities. Furthermore, the facility will use technology approved by Pork 360 assurance scheme. Pork 360 certification ensures that producers meet the increasing demand for food safety by retailers and consumers. A further result is that producers save in feed and medicine usage as the intensive monitoring of their production systems ensures that wastage is avoided and those opportunities for improvement in their production systems are continuously being identified. The expansion planned will include screen to screen out solids at the Grower units and to construct a pond to collect effluent during winter months for disposal as organic fertiliser during summer months on the 400ha available on the farm.

(e) **Operational** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

The handling and use of the pig manure and urine as organic fertiliser is the only other operational alternatives consider. The expansion planned will include screen to screen out solids at the Grower units and to construct a pond to collect effluent during winter months for disposal as organic fertiliser during summer months on the 400ha available on the farm. The proposed development is an expansion of a piggery and the current operations as for the rest of the facility will continue as is.

(f) The option of **not implementing** the activity (the '*No-Go*' Option):

The No-Go option will result in the site remaining as is presently and the existing piggery will continue as is without the expanded infrastructure. However, the No-Go Option is nevertheless considered and assessed in relation to the potential implications of the proposed project, as required in terms of NEMA and its EIA Regulations.

(g) **Other** alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist:

No additional alternatives to avoid negative impacts were considered.

(h) Provide a **summary** of all alternatives investigated and the outcome of each investigation:

Location alternatives – The property was the only alternative considered. Existing access, the existing piggery operational requirements and infrastructure were all considered when the location of the expansion facilities was taken in consideration on the property. No other location, site or property alternatives were considered as they are not feasible or reasonable due to the fact that the proposed activity is for the expansion of the existing piggery.

Activity alternatives - The activity was the only alternative considered. No other activity alternatives were considered as they are not feasible or reasonable due to the fact that the proposed activity is for the expansion of the existing piggery.

Layout alternatives – Only one design and layout alternative was considered. The existing piggery and the assurance scheme for piggeries in South Africa (Pork 360) provide guidelines for the design of the piggery facilities. The existing piggery infrastructure and its operations restricted the area to where the expanded infrastructure can be developed. No feasible or reasonable layout or design alternative exist as the existing sites development footprint and infrastructure, together with the Pork 360 assurance scheme requirements were used to design the piggery infrastructure proposed for this expansion application. South Africa was challenged with outbreaks of two exotic diseases between 2004 and 2007; namely Classical Swine Fever (CSF) and Porcine Reproductive and Respiratory Disease (PRRS). Eradication of these diseases, especially CSF, cost the government and the South African Pork Producers' Organisation (SAPPO), millions of Rands in compensation to farmers for the culling of thousands of pigs. However, the message is clear: **pig farmers must adhere to minimum biosecurity to prevent diseases entering their farms as it is unlikely that compensation will be paid in future**. SAPPO and pig veterinarians have put much effort into an educational drive to ensure that all piggeries comply with a number of minimum biosecurity measures. SAPPO encouraged SA Veterinary Services to introduce a compartmentalisation system, which is aimed at taking biosecurity to the next level and offering countries importing SA pork & pigs assurance that these products are safe to import. Producers participating in this voluntary scheme are audited by State Veterinarians and have to comply with strict biosecurity measures. The system is already bearing fruit. With the

outbreak of foot and mouth disease early in 2011, **the export of all livestock and livestock products were prohibited**. This not only affected the pockets of local livestock producers, but neighbouring countries in southern Africa also suffered, as many of them rely heavily on South Africa as part of their food basket. After negotiations with the government, pork producers participating in SAPPO's compartmentalisation system were allowed to resume exports of pork, clearly demonstrating the benefits of the compartments. The system aims to keep these highly infectious diseases from South African pig herds and is conducted in cooperation with the national animal health authorities. The compartments present a disease-control mechanism and will ensure that in the event of an exotic-disease outbreak in the country the risk of the disease spreading among South African herds is limited. The national veterinary authorities will then also be able to certify the compartments as disease free. This may ensure the continuation of exports.

Technology alternatives - No technological alternatives other than duel flush toilet systems and energy efficient lighting and geysers are considered at the facilities. Furthermore, the facility will use technology approved by Pork 360 assurance scheme. Pork 360 certification ensures that producers meet the increasing demand for food safety by retailers and consumers. A further result is that producers save in feed and medicine usage as the intensive monitoring of their production systems ensures that wastage is avoided and those opportunities for improvement in their production systems are continuously being identified. The expansion planned will include screen to screen out solids at the Grower units and to construct a pond to collect effluent during winter months for disposal as organic fertiliser during summer months on the 400ha available on the farm.

Operational alternatives – The handling and use of the pig manure and urine as organic fertiliser is the only other operational alternatives consider. The expansion planned will include screen to screen out solids at the Grower units and to construct a pond to collect effluent during winter months for disposal as organic fertiliser during summer months on the 400ha available on the farm. The proposed development is an expansion of a piggery and the current operations as for the rest of the facility will continue as is.

The No-Go Option - The No-Go option will result in the site remaining as is presently and the existing piggery will continue as is without the expanded infrastructure. However, the No-Go Option is nevertheless considered and assessed in relation to the potential implications of the proposed project, as required in terms of NEMA and its EIA Regulations.

(i) Provide a detailed **motivation for not further considering** the alternatives that were found not feasible and reasonable, including a description and proof of the investigation of those alternatives:

The proposed development is for expansion of the existing piggery. The layout, operations and technology is guided by the existing facility and Pork 360 assurance scheme.

2. PREFERRED ALTERNATIVE

(a) Provide a **concluding statement** indicating the preferred alternative(s), including preferred location, site, activity and technology for the development.

The property was the only alternative considered. No other location, site or property alternatives were considered. The activity was the only alternative considered. Only one design and layout alternative was considered. The existing piggery and the guidelines for piggeries in South Africa (Pork 360) provide guidelines for the design of the piggery facilities. No technological alternatives other than duel flush toilet systems and energy efficient lighting and geysers are considered at the facilities. Furthermore, the facility will use technology approved by Pork 360 assurance scheme. The handling and use of the pig manure and urine as organic fertiliser is the only other operational alternatives consider. The expansion planned will include screen to screen out solids at the Grower units and to construct a pond to collect effluent during winter months for disposal as organic fertiliser during summer months on the 400ha available on the farm. The proposed development is an expansion of a piggery and the current operations as for the rest of the facility will continue as is. The No-Go option will result in the site remaining as is presently and the existing piggery will continue as is without the expanded infrastructure. However, the No-Go Option is nevertheless considered and assessed in relation to the potential implications of the proposed project, as required in terms of

NEMA and its EIA Regulations. The only alternatives thus assessed were the construction of the expanded infrastructure and the operational changes in handling of the manure and urine versus the No Go option which is the current activities.

SECTION F: ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE ALTERNATIVES

Note: The information in this section must be DUPLICATED for all the feasible and reasonable ALTERNATIVES.

1. DESCRIBE THE ENVIRONMENTAL ASPECTS ASSOCIATED WITH THE PROPOSED DEVELOPMENT AND ITS ALTERNATIVES, FOCUSING ON THE FOLLOWING:

(a) Geographical, geological and physical aspects:

The site and farm is existing piggery and ploughed lands. The expansion areas of the sites will be all on ploughed agricultural lands. Riebeek Wes is situated approximately 6.2 km west of the farm. Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low-lying soils. Mainly greywacke, shale, schist and phyllite of the Porterville and Moorreesburg Formations, Malmesbury Group, as well as conglomerate, grit and sandstone of the Magrug Formation, Klipheuwel Group; occasional alluvium. The Berg river can be located adjacent to the development site and is approximately 294 km long with a catchment area of 7,715 km² and outlets into the Atlantic ocean. About 65% of the Berg River area is under agriculture. The Berg River is approximately 300 m east of the closest site (breeder site). A Non perennial river, which is a tributary of the Berg River, is approximately 66m from the newly to be constructed pond at the grower site.

(b) Ecological aspects:

Will the proposed development and its alternatives have an impact on CBAs or ESAs? If yes, please explain: Also include a description of how the proposed development will influence the quantitative values (hectares/percentage) of the categories on the CBA/ESA map.	~~YES~~	NO
NA		
Will the proposed development and its alternatives have an impact on terrestrial vegetation, or aquatic ecosystems (wetlands, estuaries or the coastline)? If yes, please explain:	~~YES~~	NO
NA		
Will the proposed development and its alternatives have an impact on any populations of threatened plant or animal species, and/or on any habitat that may contain a unique signature of plant or animal species? If yes, please explain:	YES	NO
NA		
Describe the manner in which any other biological aspects will be impacted:		
NA		
Will the proposed development also trigger section 63 of the NEM: ICMA?	~~YES~~	NO
If yes, describe the following: (i) the extent to which the applicant has in the past complied with similar authorisations; (ii) whether coastal public property, the coastal protection zone or coastal access land will be affected, and if so, the extent to which the proposed development proposal or listed activity is consistent with the purpose for establishing and protecting those areas; (iii) the estuarine management plans, coastal management programmes, coastal management lines and coastal management objectives applicable in the area; (iv) the likely socio-economic impact if the listed activity is authorised or is not authorised; (v) the likely impact of coastal environmental processes on the proposed development; (vi) whether the development proposal or listed activity— (a) is situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations; (b) is situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone is established as set out in section 17 of NEM: ICMA; (c) is situated within coastal access land and is inconsistent with the purpose for which coastal access land is designated as set out in section 18 of NEM: ICMA; (d) is likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated;		

(e) is likely to be significantly damaged or prejudiced by dynamic coastal processes; (f) would substantially prejudice the achievement of any coastal management objective; or (g) would be contrary to the interests of the whole community; (vii) whether the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land; (viii) whether the proposed development will provide important services to the public when using coastal public property, the coastal protection zone, coastal access land or a coastal protected area; and (ix) the objects of NEM: ICMA, where applicable.
NA

(c) Social and Economic aspects:

What is the expected capital value of the project on completion?	± R 80 Milj	
What is the expected yearly income or contribution to the economy that will be generated by or as a result of the project?	Unknown	
Will the project contribute to service infrastructure?	~~YES~~	NO
Is the project a public amenity?	~~YES~~	NO
How many new employment opportunities will be created during the development phase?	Unknown	
What is the expected value of the employment opportunities during the development phase?	Unknown	
What percentage of this will accrue to previously disadvantaged individuals?	Unkown %	
How will this be ensured and monitored (please explain):		
The developer can include in the contract with contractor that he must use local labour as far as possible.		
How many permanent new employment opportunities will be created during the operational phase of the project?	± 15	
What is the expected current value of the employment opportunities during the first 10 years?	± R 720 000	
What percentage of this will accrue to previously disadvantaged individuals?	90 %	
How will this be ensured and monitored (please explain):		
The EA holder will be responsible to appoint previously disadvantaged individuals and it is recommended that this be included as a EA cdondition.		
Any other information related to the manner in which the socio-economic aspects will be impacted:		
NA		

(d) Heritage and Cultural aspects:

Heritage Western Cape confirms that since there is no reason to believe that the proposed expansion of the existing 1000 sow piggery to 2000 sows by expanding the existing breed on Farm Portion 649 and Portion 4 of Farm 649, will not impact on heritage resources and that no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required.

2. WASTE AND EMISSIONS

(a) Waste (including effluent) management

Will the development proposal produce waste (including rubble) during the development phase?	YES	~~NO~~
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	10 m^3	
Inert waste during construction.		

Will the development proposal produce waste during its operational phase?	YES	~~NO~~
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type?	94 640 m^3 per year	
Mortalities = approximately 8 tons per week. Sludge as Organic fertiliser = 1020 m^3 per week		

Will the development proposal require waste to be treated / disposed of on site?	YES	~~NO~~
If yes, indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	94 640 m^3 per year	
The mortalities are removed from the sites daily and treated at the onsite compost facility.		

The "biodegradable industrial wastewater" from a Confined Animal Feeding Operation as defined and as set forth in the GN 665 of 06 September 2013 for Section 21 (e) activities, will be reused via irrigation in accordance with the recommendations for the application of wastewater to agricultural land presented in the prescribed Water Research Commission Guidelines (as detailed under subsection 1.10 of the schedule) onto the available 400ha agricultural lands. 100m buffer areas on the non-perenial river and Berg River will be exluded from the irrigation areas in order to prevent pollution of the surface and ground water resources and river systems. The biodegradable industrial wastewater at the grower units will be screened to remove the solids that will be treated at the compost facility to compost together with the mortalities and other organic waste produced on the property. The liquid portion will be collected from a sump and irrigated onto the 400ha agricultural lands as organic fertilizer. A 50 m x 50 m x 4m deep (10 000m^3) dam lined with an artificial liner will be used to store the 80 rainy days per year biodegradable industrial wastewater generated for irrigation in summer.		
If no, where and how will the waste be treated / disposed of? Please explain. Indicate the types of waste (actual type of waste, *e.g.* oil, and whether hazardous or not) and estimated quantity per type per phase of the proposed development to be treated/disposed of?	m^3	
The "biodegradable industrial wastewater" from a Confined Animal Feeding Operation as defined and as set forth in the GN 665 of 06 September 2013 for Section 21 (e) activities, and can thus be reused via irrigation in accordance with the recommendations for the application of wastewater to agricultural land presented in the prescribed Water Research Commission Guidelines (as detailed under subsection 1.10 of the schedule).		
Has the municipality or relevant authority confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? If yes, provide written confirmation from the municipality or relevant authority.	~~YES~~	NO
Will the development proposal produce waste that will be treated and/or disposed of at another facility other than into a municipal waste stream?	~~YES~~	NO
If yes, has this facility confirmed that sufficient capacity exists for treating / disposing of the waste to be generated by the development proposal? Provide written confirmation from the facility.	~~YES~~	~~NO~~
Does the facility have an operating license? (If yes, please attach a copy of the licence.)	~~YES~~	~~NO~~

Facility name:	
Contact person:	
Cell:	Postal address:
Telephone:	Postal code:
Fax:	E-mail:

Describe the measures that will be taken to reduce, reuse or recycle waste:
All organic waste will be composted at the onsite compost facility. Mortalities will be composted on site and all of "biodegradable industrial wastewater" from the Confined Animal Feeding Operation will be reused via irrigation in accordance with the recommendations for the application of wastewater to agricultural land presented in the prescribed Water Research Commission Guidelines (as detailed under subsection 1.10 of the schedule)..

(b) Emissions into the atmosphere

Will the development proposal produce emissions that will be released into the atmosphere?	YES	~~NO~~
If yes, does this require approval in terms of relevant legislation?	~~YES~~	NO
If yes, what is the approximate volume(s) of emissions released into the atmosphere?	Emissions of H_2S are estimated to amount to 5.2 tpa & NH_3 are estimated	tons

	to amount to 211.2tpa	

Describe the emissions in terms of type and concentration and how these will be avoided/managed/treated/mitigated:

Much is published in literature about potential emissions from piggeries in general, but very few emissions have been quantified, so much so that the United States of America's Environmental Protection Agency (USEPA) does not provide any emission factors in its Compilation of Air Pollutant Emission Factors, AP-42, Volume I: Stationary Point and Area Sources (AP-42). According to literature many odorous compounds can be emitted, such as mercaptans, hydrogen sulphide (H_2S), skatole, thiocresol, thiophenol and ammonia (NH_3), but quantitative details of such emission are extremely scarce. Literature also states that by far the major source of odorous emission result from manure effluent handling activities and that the two gases most commonly associated with odours from these operations are NH_3 and H_2S. The investigation and literature review showed that approximately 52.7% of NH_3 emissions originated in the sheds and effluent system while the remainder (47.4%) originated in the effluent handling system. Of the H_2S generated, approximately 31.1% originated in the sheds and effluent system while the remainder (68.9%) originated in the effluent handling system[4].

The maximum annual concentration of NH_3 is estimated to be 340 µg/m^3 and will occur roughly at the centre of the pig farming operation. The maximum 99-percentile concentration is estimated to be 1.84 mg/m^3 and will occur in the same area.

The maximum annual concentration of H_2S is estimated to be 8.3 µg/m^3 and will occur in the immediate area of the effluent dams. The maximum 95-percentile concentration is estimated to be 45.1 µg/m^3 and will occur in the same area.

An uncertainty in the possible spread of odours does, therefore, exist, but as H_2S is one of the gases with the lowest odour detection level, its presence will most likely be detected before any other gaseous compound. The predominant wind directions are east to south-easterly and west to south-westerly, which implies that pollutants will disperse mainly in west to north-westerly and east to north-westerly directions from the location of the proposed piggery.

This value of NH_3 is substantially lower than the odour recognition threshold of 33.2 mg/m^3. The ammonia odours may spread over an extended area, but its concentration is not expected to be of a level where it can be recognised as NH_3. H_2S, however, is expected to be above the odour recognition threshold. The minimum scale is set to the odour recognition threshold of H_2S and may be recognised.

Therefore, the impact of the proposed piggery on air quality in the general area will be low, but that some nuisance due to odorous emissions can be caused in the area surrounding the piggery farm from time-to-time.

It is recommended that a row of trees on all sides of the sheds and on the upwind sides of the aeration dams, be plant that will diffuse pollutants emitted from the various sources, thus reducing the dispersion footprint.

3. WATER USE

(a) Indicate the source(s) of water for the development proposal by highlighting the appropriate box(es).

~~Municipal~~	Water board	~~Groundwater~~	River, Stream, Dam or Lake	~~Other~~	~~The project will not use water~~

Note: Provide proof of assurance of water supply (e.g. Letter of confirmation from the municipality / water user associations, yield of borehole)

(b) If water is to be extracted from a groundwater source, river, stream, dam, lake or any other	300	m^3

[4] Ammonia and Hydrogen Sulfide Emissions from Swine Production Facilities in North America: a Meta-Analysis; Z. Liu and W.J. Powers; SWINE DAY 2013.

natural feature, please indicate the volume that will be extracted per month:		

(c) Does the development proposal require a water use permit / license from DWS?	YES	~~NO~~
If yes, please submit the necessary application to the DWS and attach proof thereof to this application as an Appendix.		

Water Use Authorization for the reuse via irrigation onto agricultural ands in terms of the GN 665 of 06 September 2013 for Section 21 (e) activities for the "biodegradable industrial wastewater" from a Confined Animal Feeding Operation as defined and as set forth in the act in accordance with the recommendations for the application of wastewater to agricultural land presented in the prescribed Water Research Commission Guidelines (as detailed under subsection 1.10 of the schedule).

The report presents detail regarding the following key issues of the NWA:
Section 21 (a) & (b):
Taking water from a water resource (amendment to the existing water right for irrigation purposes to livestock usage) and storage of water. Water storage at EACH facility, or the COMBINED facilities, will not exceed the 10 000 m^3 requirement as stipulated by the DWA WARMS registration guideline and is thus also significantly less than the 50 000 m^3 as stipulated on the DWA Registration.

Section 21 (c):
impeding or diverting the flow of water in a watercourse, for the infrastructure within 100m from the water course and 500m from a wetland. The biodegradable industrial wastewater storage dam will be within 100m from the non-perennial water course.

Section 21 (e):
Engaging in a controlled activity, identified as such in Section 37(1): Irrigation of any land with waste or water containing waste generated through any industrial activity or by a waterwork.

Section 21 (g):
Disposing of waste in a manner which may detrimentally impact on a water resource.

(d) Describe the measures that will be taken to reduce water demand, and measures to reuse or recycle water:

The the "biodegradable industrial wastewater" from a Confined Animal Feeding Operation will be used for irrigation on the property. All piggery housing and infrastructure water supplhy will be controlled in order to minimise wastages.

4. POWER SUPPLY

(a) Describe the source of power *e.g.* municipality / Eskom / renewable energy source.

ESKOM

(b) If power supply is not available, where will power be sourced?

NA

5. ENERGY EFFICIENCY

(a) Describe the design measures, if any, that have been taken to ensure that the development proposal will be energy efficient:

Energy efficient lighting will be used in the houses.

(b) Describe how alternative energy sources have been taken into account or been built into the design of the project, if any:

The facility has a backup generator.

6. TRANSPORT, TRAFFIC AND ACCESS

Describe the impacts in terms of transport, traffic and access.

Existing access roads will be used. The facility uses the gravel road to Hermon for operational

purposes. The applicant spend two years ago R 3 million to gravel surface the road and grade the road when required. The expanded facility will generate 676 trips per year in order to operate the facility. The existing access roads is sufficient for the proposed expansion and the applicant will continue to grade and maintain the road when required.

7. NUISANCE FACTOR (NOISE, ODOUR, etc.)

Describe the potential nuisance factor or impacts in terms of noise and odours.

Much is published in literature about potential emissions from piggeries in general, but very few emissions have been quantified, so much so that the United States of America's Environmental Protection Agency (USEPA) does not provide any emission factors in its Compilation of Air Pollutant Emission Factors, AP-42, Volume I: Stationary Point and Area Sources (AP-42). According to literature many odorous compounds can be emitted, such as mercaptans, hydrogen sulphide (H_2S), skatole, thiocresol, thiophenol and ammonia (NH_3), but quantitative details of such emission are extremely scarce. Literature also states that by far the major source of odorous emission result from manure effluent handling activities and that the two gases most commonly associated with odours from these operations are NH_3 and H_2S. The investigation and literature review showed that approximately 52.7% of NH_3 emissions originated in the sheds and effluent system while the remainder (47.4%) originated in the effluent handling system. Of the H_2S generated, approximately 31.1% originated in the sheds and effluent system while the remainder (68.9%) originated in the effluent handling system[5].

The maximum annual concentration of NH_3 is estimated to be 340 µg/m^3 and will occur roughly at the centre of the pig farming operation. The maximum 99-percentile concentration is estimated to be 1.84 mg/m^3 and will occur in the same area.

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An uncertainty in the possible spread of odours does, therefore, exist, but as H_2S is one of the gases with the lowest odour detection level, its presence will most likely be detected before any other gaseous compound. The predominant wind directions are east to south-easterly and west to south-westerly, which implies that pollutants will disperse mainly in west to north-westerly and east to north-westerly directions from the location of the proposed piggery.

This value of NH_3 is substantially lower than the odour recognition threshold of 33.2 mg/m^3. The ammonia odours may spread over an extended area, but its concentration is not expected to be of a level where it can be recognised as NH_3. H_2S, however, is expected to be above the odour recognition threshold. The minimum scale is set to the odour recognition threshold of H_2S and may be recognised.

Therefore, the impact of the proposed piggery on air quality in the general area will be low, but that some nuisance due to odorous emissions can be caused in the area surrounding the piggery farm from time-to-time.

It is recommended that a row of trees on all sides of the sheds and on the upwind sides of the aeration dams, be plant that will diffuse pollutants emitted from the various sources, thus reducing the dispersion footprint.

Note: Include impacts that the surrounding environment will have on the proposed development.

8. OTHER

POTENTIAL VISUAL IMPACTS

[5] Ammonia and Hydrogen Sulfide Emissions from Swine Production Facilities in North America: a Meta-Analysis; Z. Liu and W.J. Powers; SWINE DAY 2013.

Nature of impact: Visual impact of infrastructure and services establishment.
Discussion: The construction activities for the proposed developments and decommissioning will have a temporary visual impact on the landscape.
Cumulative impacts: Construction activities on construction site.
Mitigation: Proposed construction activities must be limited to development footprint site. Construction camp must be neatly fenced and construction site must be neat and tidy.

Criteria	Preferred Layout Alternative				No-Go Alternative	
	Without Mitigation	With Mitigation			Without Mitigation	With Mitigation
Extent	1	1			Not Applicable (No construction activities to take place during the No-Go Alternative)	
Duration	1	1				
Magnitude	2	2				
Probability	2	2				
Significance	8- Low	8- Low				
Status	Not significant	Not significant				
Reversibility	0% reversibility – once the visual features are destroyed, it cannot be recovered.					
Irreplaceable loss of resources	3- Yes, completely irreplaceable					
Can impacts be mitigated?	1-Yes					

SECTION G: IMPACT ASSESSMENT, IMPACT AVOIDANCE, MANAGEMENT, MITIGATION AND MONITORING MEASURES

1. METHODOLOGY USED IN DETERMINING AND RANKING ENVIRONMENTAL IMPACTS AND RISKS ASSOCIATED WITH THE ALTERNATIVES

(a) Describe the **methodology** used in determining and ranking the nature, significance consequences, extent, duration and probability of potential environmental impacts and risks associated with the proposed development and alternatives.

The assessment criteria were developed based on the Department of Environmental Affair's Integrated Environmental Management Series guideline documents.

Criteria	Description		
Nature	A description of what causes the effect, what will be affected, and how it will be affected.		
	Type	**Score**	**Description**
Extent (E)	None (No)	1	Footprint
	Site (S)	2	On site or within 100 m of the site
	Local (L)	3	Within a 20 km radius of the centre of the site
	Regional (R)	4	Beyond a 20 km radius of the site
	National (Na)	5	Crossing provincial boundaries or on a national / land wide scale
Duration (D)	Short term (S)	1	0 – 1 years
	Short to medium (S-M)	2	2 – 5 years
	Medium term (M)	3	5 – 15 years
	Long term (L)	4	> 15 years

	Permanent(P)	5	Will not cease
Magnitude (M)	Small (S)	0	will have no effect on the environment
	Minor (Mi)	2	will not result in an impact on processes
	Low (L)	4	will cause a slight impact on processes
	Moderate (Mo)	6	processes continuing but in a modified way
	High (H)	8	processes are altered to the extent that they temporarily cease
	Very high (VH)	10	Results in complete destruction of patterns and permanent cessation of processes.
Probability (P) The likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned	Very improbable (VP)	1	probably will not happen
	Improbable (I)	2	some possibility, but low likelihood
	Probable (P)	3	distinct possibility
	Highly probable (HP)	4	most likely
	Definite (D)	5	impact will occur regardless of any prevention measures
Significance (S)	Determined through a synthesis of the characteristics described above: **S = (E+D+M) x P** Significance can be assessed as low, medium or high		
Low: < 30 points:	The impact would not have a direct influence on the decision to develop in the area		
Medium: 30 – 60 points:	The impact could influence the decision to develop in the area unless it is effectively mitigated		
High: < 60 points:	The impact must have an influence on the decision process to develop in the area		
No significance	When no impact will occur or the impact will not affect the environment		
Status	Positive (+)		Negative (-)
The degree to which the impact can be reversed	Completely reversible (R)	90-100%	The impact can be mostly to completely reverse with the implementation of the correct mitigation and rehabilitation measures.
	Partly reversible (PR)	6-89%	The impact can be partly reversed providing that mitigation measures as stipulated in the EMP are implemented and rehabilitation measures are undertaken
	Irreversible (IR)	0-5%	The impact cannot be reversed, regardless of the mitigation or rehabilitation measures taking place
The degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost (R)	1	The resource will not be lost or destroyed provided that mitigation and rehabilitation measures as stipulated in the EMP are implemented
	Resource may be partly destroyed (PR)	2	Partial loss or destruction of the resources will occur even though all management and mitigation measures as stipulated in the EMP are implemented
	Resource cannot be replaced (IR)	3	The resource cannot be replaced no matter which management or mitigation measures are implemented.
The degree to which the impact can be mitigated	Completely mitigatable (CM)	1	The impact can be completely mitigated providing that all management and mitigation measures as stipulated in the EMP are implemented
	Partly mitigatable (PM)	2	The impact cannot be completely mitigated even though all management and mitigation measures as stipulated in the EMP are implemented. Implementation of these measures will provide a measure of mitigatibility
	Un-mitigatable (UM)	3	The impact cannot be mitigated no matter which management or mitigation measures are

			implemented.

(b) Please describe any gaps in knowledge.

EAP is only knowledgeable with regards to the environmental impacts, biodiversity and ecosystems aspects.

(c) Please describe the underlying assumptions.

In undertaking the investigation and compiling this report, the following has been assumed: • The information provided by the client is accurate and unbiased; • The scope of this investigation is to assess the direct and cumulative environmental impacts associated with the development; and • Should the proposed project be authorised, the applicant will incorporate the recommendations and mitigation measures outlined in this BAR, the EMP and the EA into the detailed design and construction contract specifications and operational management system for the proposed project.

(d) Please describe the uncertainties.

None at this stage.

(e) Describe adequacy of the assessment methods used.

Based on the EAP's assessment information was provided to address the concerns and assess the impacts of the proposed development on the environment. Information as provided by the applicant and as collected by the EAP during site surveys etc. has been used to inform the current development proposals.

2. IDENTIFICATION, ASSESSMENT AND RANKING OF IMPACTS TO REACH THE PROPOSED ALTERNATIVES INCLUDING THE PREFERRED ALTERNATIVE WITHIN THE SITE

Note: In this section the focus is on the identified issues, impacts and risks that influenced the identification of the alternatives. This includes how aspects of the receiving environment have influenced the selection.

(a) List the identified impacts and risks for each alternative.

Alternative 1: Preferred	Potential negative impacts that may arise from the proposed construction phase include ecological effects due to: • generation and disposal of waste; and • spillage of hazardous substances. Possible environmental impacts caused during the operational phase that are likely to impact on estuarine communities include the effects of: • generation and disposal of waste; and, • Odours. The assessment of these impacts before and after recommended mitigation is summarised in the table below. After mitigation, none of the impacts are assessed as being above LOW significance. Construction phase: • Disturbance to subsurface geological layers (low impact before mitigation and low impact with mitigation measures); • Soil erosion and dust - (Low impact before mitigation and low impact with mitigation measures); • Impact of construction activities on surface and underground water pollution - (High impact before mitigation and low impact with mitigation measures); • Impact on Drainage Line / Groundwater resources - (High impact before mitigation and low impact with mitigation measures); • Impact on surrounding and municipal planning policies and guidelines - (low impact before mitigation and low impact with mitigation measures);

	• Impact on the indigenous terrestrial flora and habitat present in the area. Impact on the naturally occurring fauna present in the area - (Low impact before mitigation and low impact with mitigation measures); • Increased jobs - (No impact before mitigation and positive impact with mitigation measures); • Increased traffic due to the construction activities requiring various vehicles to come onto and leave the site - (Low impact before mitigation and low impact with mitigation measures); • The potential impact of the proposed development on archaeological, paleontological and heritage remains - (Low impact before mitigation and low impact with mitigation measures); Operational phase: • Disposal of biodegradable wastewater - (High impact before mitigation and low impact with mitigation measures); • Soil erosion and dust - (low impact before mitigation and low impact with mitigation measures); • Impact of operation activities on surface and underground water pollution - (High impact before mitigation and low impact with mitigation measures); • Impact on Drainage Line / Groundwater resources - (High impact before mitigation and low impact with mitigation measures); • Impact on surrounding land use and its potential effect on surrounding environment - (low impact before mitigation and low impact with mitigation measures); • Impact on the indigenous terrestrial flora and habitat present in the area. Impact on the naturally occurring fauna present in the area - (Low impact before mitigation and low impact with mitigation measures); • Increased jobs - (No impact before mitigation and positive impact with mitigation measures); • Increased traffic due to the operation activities requiring various vehicles to come onto and leave the site - (Low impact before mitigation and low impact with mitigation measures); • The potential impact of the proposed maintenance activities on archaeological, paleontological and heritage remains - (Low impact before mitigation and low impact with mitigation measures); Decommissioning phase: • Similar to impacts associated with construction phase.
Alternative x:	NA
No-go Alternative:	The No-Go option will result in the site remaining as is presently.

(b) Describe the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated.

The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. (The EAP has to select the relevant impacts identified in blue in the table below for each alternative and repeat the table for each impact and risk).

Alternative 1 : Preferred Layout	**Geographical and Physical Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Construction activities can affect the underlying geological layers on site to some extent.**
Nature of impact:	**Disturbance to subsurface geological layers**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 2 (two to five years)**
Consequence of impact or risk:	**Construction and excavation activities can affect the underlying geological layers on site to some extent.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**

Indirect impacts:	**Disturbance to surrounding subsurface geological layers**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Demarcation and work within demarcated areas only.**
Residual impacts:	**It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Disposal of biodegradable wastewater.**
Nature of impact:	**Disturbance to subsurface geological layers**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 2 (two to five years)**
Consequence of impact or risk:	**Irrigation of biodegradable industrial wastewater can affect the underlying geological layers on site to some extent.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surrounding subsurface geological layers**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high. "Biodegradable industrial wastewater" from a Confined Animal Feeding Operation as defined and as set forth in the GN 665 of 06 September 2013 for Section 21 (e) activities and can be reused via irrigation in accordance with the recommendations for the application of wastewater to agricultural land presented in the prescribed Water Research Commission Guidelines (as detailed under subsection 1.10 of the schedule).** **It is noteworthy that the piggeries accord with the latest upgrades in terms of the confined animal feeding operation housing and wastewater treatment technology, with the biodegradable industrial wastewater generated representing a controlled wastewater consisting of manure (faeces and urine) and washwater, thus fully complying with the definition provided in the Schedule of organic waste being "of non-anthropogenic origin that is readily biodegradable in the environment and does not contain any toxic substances that may accumulate in the environment".** **The subsequent Primary Treatment conducted accords with the definition provided in the Schedule as "treatment of wastewater by a physical process, which may involve maceration, sedimentation, screening and grit removal". The final classification of the solids and liquid fractions produced accord with the Unrestricted Use as detailed in the applicable Guidelines for the Utilisation and Disposal of Wastewater Sludge, Volume 2 of 5: Requirements for the Agricultural Use of Wastewater Sludge – WRC TT 262/06.** **All cleaning chemicals used intermittently when cleaning a platform on a site are registered products for animal housing facilities and used in accordance with the product instructions and do not contribute any contaminants to the wastewater generated. All veterinary products used are done so under guidance from consultant veterinarians with the required separate medical waste disposal methods adhered to and audited by the consultant veterinarians.The introduction of a Separator Stage (press separator) to the grower site allows the fractions generated to represent an additional environmental benefit to the area as per the stated policy advocated by the DWS in which the beneficial reuse of the wastewater is encouraged, with benefits including those for utilizing the nutrients (nitrogen, phosphorus and potassium) and organic**

	carbon for both soil condition and enhanced crop production. **The WRC Guideline Classification for the compost solids fraction is <u>unrestricted</u>, enabling beneficial use thereof off-site. Classification: Pollutant Class: A: Thus: (a) Agricultural Use is an acceptable option. (b) No additional restrictions or requirement apply and (c) Could be used as a saleable product.** **Typical Pig Slurry composition consists of 4.2kg/Nitrate/1000l, 41.4kg/Phosphate/1000l and 2.2kg/Potash/1000l** **The raw wastewater generated on site will contain 4.2 kg N/1000L. The DWS Section 21 e Permitted Application Rates of 320 – 450 kg Nitrate (N)/ha/y. Therefore 128 000 L/ha/y at 320 320 kg N/ha/y and 180 000 l/ha/y at 450 kg N/ha/y on the available 400ha for irrigation. Take note that the property is bigger, but that the available area for irrigation is 400ha due to the exclusions of the 100m buffer areas.** **The facility will produce 1080 m^3 (1 080 000l) of biodegradable industrial wastewater per week with a total of 56 160 000 l/y. At the lower limit of the DWS Section e disposable rate the facility will irrigate 51 200 000l/y and at the upper limit 72 000 000l/y. This is well within the range that is stipulated by DWS in the guidelines for N and the irrigation of the expanded facility biodegradable industrial wastewater will not result in the pollution of the soil from a N parameters.** **DWS Section 21 e Permitted Application Rates of 320 – 450 kg Nitrate (N)/ha/y. Therefore 128 000 L/ha/y at 320 320 kg N/ha/y and 180 000 l/ha/y at 450 kg N/ha/y on the available 400ha for irrigation. Take note that the property is bigger, but that the available area for irrigation is 400ha due to the exclusions of the 100m buffer areas.** **The facility will produce 1080 m^3 (1 080 000l) of biodegradable industrial wastewater per week with a total of 56 160 000 l/y. At the lower limit of the DWS Section e disposable rate the facility will irrigate 51 200 000l/y and at the upper limit 72 000 000l/y. This is well within the range that is stipulated by DWS in the guidelines for N and the irrigation of the expanded facility biodegradable industrial wastewater will not result in the pollution of the soil from a N parameters.** **The use of these fractions are preferred to the use of inorganic fertilisers as the N-fraction in the inorganic fertilisers is inorganic nitrate-N which represents a greater risk of leaching towards water resources when compared to the ammonia-N fractions from the biodegradable industrial wastewater. It should be noted that the wastewater generated by the piggery is significantly of lower risk than that generated from other industry sectors and domestic wastewater, predominantly as it is controlled and does not contain pollutants or contaminants (refer to the Water Research Commission on Dialogues of Contaminants of Emerging Concern 2015)[6].** **Since the liquid fraction should contain no solids/fibre, thus less crust should form (crusts contribute to anaerobic conditions and further putrification of liquid and consequently odour issues).** **Several researchers have observed that NPK values for pig manure were similar between different countries (Conn et al., 2007; Moore et al., 2005; and Sanchez and Gonzalez, 2005). Fertilizer values for liquid and solid fractions are also viewed as similar. Differences are observed between various livestock types regarding manure composition.** **Ruminant manure tends to have lower P compared to poultry and pig manure due to a better plant-bound P extraction ability (Bailey and Buckley, 1998). As reported by the authors pig manure, although subject to variation from production system factors, is regarded as**

[6] Dr JA Meyer 06.01.2017. Water Use and Waste Handling Practices For HUMPHRIES BOERDERY (Pty) Ltd. Response to Questions from the Department of Agriculture Limpopo Province re: Draft BAR for Humphries Tweefontein Production Facility Ref No: HUM-BEL-15.09.29.

	generally having the following composition: • **50 % N in the ammonium (inorganic) form** • **50% in the organic form (microbial, labile organic, stable** **In terms of land application the considerations are a combination of benefits and potential concerns, thus balancing crop requirements with potential adverse environmental impacts. During the growing season 20% of the organic N form is reported to mineralize and thus be available for plant uptake. Of the inorganic fraction 25% of the ammoniacal N may be lost due to volatilization. Collectively this implies a net availability of ca. 50% of the applied N for crop production. NH4-N losses may also vary largely, with 10 – 99% ranges recorded. Losses were the highest from anaerobic lagoons. Whilst P & K were viewed to be relatively stable with 5 – 15% losses reported, the highest potential loss was that of P (up to 50%) due to runoff and/or leaching. Kachanoski et al. (1997) reported that the ammonium form may be increased to 60 – 90%.organic). This is one of the reasons why Water resource quality monitoring emphasizes demonstrating that the storage of wastewater does not enter or cause impact on existing water resources, and why lagoons should be lined. According to Sutton et al. (1984) other concerns relate to dietary composition and potential increases to applied areas in NaCl and trace elements (As, Se, Cu, etc.). Similar concerns are noted by Lukehurst et al. (2010) and dealt with by the WRC TT Guidelines referred under the relevant sections of the NWA.[7]**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**64 - High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**

Proposed mitigation:	**That the biodegradable industrial wastewater be disposed onto the onsite available 400ha agricultural lands and that a 100m buffer area between the Berg River and non-perennial drainage lines be excluded from the irrigation areas to protect possible pollution of the water sources. Monitoring on a regular basis as determined by the results obtained is a general recommendation. This is particularly relevant due to the vicinity of the Berg. The borehole quality must be monitored twice per year. The river upstream sample site may require more frequent quarterly monitoring to assess the high and low impact periods.**
	The water resources (and wastewater liquid fraction reused) must be monitored biannually as per the recommended guidelines for inorganic chemistry physico-chemical properties, andmicro-biological indicator organisms to ensure no adverse impact occurs. Yields therefrom must be recorded with agronomic production rates and soil composition monitored to support the beneficial reuse of the liquid fraction.
	
	General Restrictions that apply include:
	• **Sludge may be stored in suitable facilities (design to ensure minimal impact on environment).**
	• **Actions must be taken to reduce odours and vector attraction. Application rate must <10 tons dry mass/ha/year.**
	• **Nutrient loading limits apply**
	• **Slope and land preparation must not result in soil erosion or potential surface runoff.**
	• **Buffer zones required:**
	  o **Depth to aquifer > 5 m**
	  o **Distance from surface water/borehole > 100m**
	  o **Application to land >500m away from dwellings.**
	
	• **Relaxation from buffer zones may be applied for on condition that proof is provided that the water resource or odour control or vector attraction areadequately protected or implemented.**
	
	• **Monitoring must be performed for:**
	  o **Sludge**
	  o **Soils**

[7] Dr JA Meyer 06.01.2017. Water Use and Waste Handling Practices For HUMPHRIES BOERDERY (Pty) Ltd. Response to Questions from the Department of Agriculture Limpopo Province re: Draft BAR for Humphries Tweefontein Production Facility Ref No: HUM-BEL-15.09.29.

	• **Record Keeping must be in place for these aspects listed and application volumes and areas.**
Residual impacts:	**It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**28 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	
Nature of impact:	**Disturbance to subsurface geological layers**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 2 (two to five years)**
Consequence of impact or risk:	**Construction and excavation activities can affect the underlying geological layers on site to some extent.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surrounding subsurface geological layers**
Cumulative impact prior to mitigation:	**It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Demarcation and work within demarcated areas only.**
Residual impacts:	**It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high as the affected substrata is deep and the integrity of the underlying ground structures will not be sacrificed.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**

Alternative 1 : Preferred Layout	**Geographical and Physical Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Soil erosion and dust**
Nature of impact:	**Construction activities will cause a disturbance to the soil and the vegetation cover on the site. This disturbance, unless carefully managed, could spread as a result.** **Soil erosion can occur due to wind (wind erosion cause dust pollution); and due to overland storm water flow should rains fall during construction. Due to the sloping nature of the terrain, it is unlikely that a shallow perched water table will develop on site. Residual soils are also expected to have a very low permeability and due to low infiltration rates and the sloping terrain, water will tend to runoff from surface in a downslope direction.** **Soil erosion can occur due to wind (wind erosion causes dust pollution).**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (permanent)**
Consequence of impact or risk:	**Construction and excavation activities can result in erosion and dust.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surface area can result in erosion and dust generation**
Cumulative impact prior to mitigation:	**Exposing soil may lead to erosion and dust generation if not mitigated.**
Significance rating of impact prior to mitigation	**16 - Low**

(e.g. Low, Medium, Medium-High, High, or Very-High)	
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Control access to roads and other areas to avoid disturbance of areas outside the development footprint. Undertake dust suppression as needed. Personnel should be restricted to the camp site and immediate construction areas only. Undertake storm water management measures as required, with special attention to storm water management that may be required upslope. Rehabilitate or stabilise eroded areas immediately to prevent increase in erosion.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Soil erosion and dust**
Nature of impact:	**Operational activities will cause a disturbance to the soil and the vegetation cover on the site. This disturbance, unless carefully managed, could spread as a result. Soil erosion can occur due to wind (wind erosion cause dust pollution); and due to overland storm water flow should rains fall during construction. Due to the sloping nature of the terrain, it is unlikely that a shallow perched water table will develop on site. Residual soils are also expected to have a very low permeability and due to low infiltration rates and the sloping terrain, water will tend to runoff from surface in a downslope direction. Soil erosion can occur due to wind (wind erosion causes dust pollution).**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (permanent)**
Consequence of impact or risk:	**Ploughing, Construction and excavation activities can result in erosion and dust.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surface area can result in erosion and dust generation**
Cumulative impact prior to mitigation:	**Exposing soil may lead to erosion and dust generation if not mitigated.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Control access to roads and other areas to avoid disturbance of areas outside the development footprint. Undertake dust suppression as needed. Personnel should be restricted to the camp site and immediate areas only. Undertake storm water management measures as required, with special attention to storm water management that may be required upslope. Rehabilitate or stabilise eroded areas immediately to prevent increase in erosion.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Soil erosion and dust**

Nature of impact:	**Construction activities will cause a disturbance to the soil and the vegetation cover on the site. This disturbance, unless carefully managed, could spread as a result.** **Soil erosion can occur due to wind (wind erosion cause dust pollution); and due to overland storm water flow should rains fall during construction. Due to the sloping nature of the terrain, it is unlikely that a shallow perched water table will develop on site. Residual soils are also expected to have a very low permeability and due to low infiltration rates and the sloping terrain, water will tend to runoff from surface in a downslope direction.** **Soil erosion can occur due to wind (wind erosion causes dust pollution).**
Extent and duration of impact:	**Extent 1 (footprint) & Duration 5 (permanent)**
Consequence of impact or risk:	**Construction and excavation activities can result in erosion and dust.**
Probability of occurrence:	**2 (Improbable: some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**Low**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Disturbance to surface area can result in erosion and dust generation**
Cumulative impact prior to mitigation:	**Exposing soil may lead to erosion and dust generation if not mitigated.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 - Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Control access to roads and other areas to avoid disturbance of areas outside the development footprint.** **Undertake dust suppression as needed.** **Personnel should be restricted to the camp site and immediate construction areas only.** **Undertake storm water management measures as required, with special attention to storm water management that may be required upslope.** **Rehabilitate or stabilise eroded areas immediately to prevent increase in erosion.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 - Low**

Alternative 1 : Preferred Layout	**Geographical and Physical Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Impact of construction activities on surface and underground water pollution**
Nature of impact:	**Diesel and oil spills affecting ground and surface water.**
Extent and duration of impact:	**Extent 3 (Within a 20 km radius of the centre of the site) & Duration 3 (5 – 15 years)**
Consequence of impact or risk:	**Possible pollution of surface and ground water.**
Probability of occurrence:	**4 (most likely)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**64 - High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.**

Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**28 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Impact of construction activities on surface and underground water pollution**
Nature of impact:	**Diesel and oil spills affecting ground and surface water.**
Extent and duration of impact:	**Extent 3 (Within a 20 km radius of the centre of the site) & Duration 3 (5 – 15 years)**
Consequence of impact or risk:	**Possible pollution of surface and ground water.**
Probability of occurrence:	**4 (most likely)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**64 - High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**28 - Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Impact of construction activities on surface and underground water pollution**
Nature of impact:	**Diesel and oil spills affecting ground and surface water.**
Extent and duration of impact:	**Extent 3 (Within a 20 km radius of the centre of the site) & Duration 3 (5 – 15 years)**
Consequence of impact or risk:	**Possible pollution of surface and ground water.**
Probability of occurrence:	**4 (most likely)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**64 - High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**28 - Low**

Alternative 2 : Alternative layout	**Geographical and Physical Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Impact of construction activities on surface and underground water pollution**
Nature of impact:	**Diesel and oil spills affecting ground and surface water.**
Extent and duration of impact:	**Extent 3 (Within a 20 km radius of the centre of the site) & Duration 3 (5 – 15 years)**
Consequence of impact or risk:	**Possible pollution of surface and ground water.**
Probability of occurrence:	**4 (most likely)**

Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**64 - High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**28 - Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Impact of construction activities on surface and underground water pollution**
Nature of impact:	**Diesel and oil spills affecting ground and surface water. Disposal of biodegradable wastewater.**
Extent and duration of impact:	**Extent 3 (Within a 20 km radius of the centre of the site) & Duration 3 (5 – 15 years)**
Consequence of impact or risk:	**Possible pollution of surface and ground water.**
Probability of occurrence:	**4 (most likely)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**64 – High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**28 – Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Impact of construction activities on surface and underground water pollution**
Nature of impact:	**Diesel and oil spills affecting ground and surface water.**
Extent and duration of impact:	**Extent 3 (Within a 20 km radius of the centre of the site) & Duration 3 (5 – 15 years)**
Consequence of impact or risk:	**Possible pollution of surface and ground water.**
Probability of occurrence:	**4 (most likely)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**64 – High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Mitigation measures included in EMP, attached as Appendix H, shall be adhered to.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**

Cumulative impact post mitigation:	**Diesel and oil spills affecting ground and surface water quality.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**28 – Low**

Alternative 1 : Preferred Layout	**Geographical and Physical Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Impact on drainage line / groundwater resources**
Nature of impact:	**Natural drainage on site is expected to follow the topography, draining downslope towards the north and Berg River. The storm water flow of site will link to regional drainage pathways within the area and therefore regional groundwater as a whole is vulnerable to contamination. Contaminants and pollutants from both point and diffuse sources would quickly enter the regional groundwater system. Any aquifers in the area are likely to be in hydraulic continuity with the Berg River groundwater regime.**
Extent and duration of impact:	**Extent 1 (Footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Possible contamination of groundwater resources.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Possible contamination of water resources.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Mitigation measures outlined in EMP, attached as Appendix H, shall be adhered to.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**Possible contamination of groundwater resources.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Impact on drainage line / groundwater resources**
Nature of impact:	**Natural drainage on site is expected to follow the topography, draining downslope towards the north and Berg River. The storm water flow of site will link to regional drainage pathways within the area and therefore regional groundwater as a whole is vulnerable to contamination. Contaminants and pollutants from both point and diffuse sources would quickly enter the regional groundwater system. Any aquifers in the area are likely to be in hydraulic continuity with the Berg River groundwater regime.**
Extent and duration of impact:	**Extent 2 (On site or within 100 m of the site) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Possible contamination of water resources.**
Probability of occurrence:	**4 (most likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Possible contamination of water resources.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**64 – High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Management and monitoring the irrigation of biodegradable waste water and control seepage into the water courses by preventing over irrigation and irrigation into the 100m buffer areas.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**Possible contamination of water resources.**

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**28 – Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Impact on drainage line / groundwater resources**
Nature of impact:	**Natural drainage on site is expected to follow the topography, draining downslope towards the north and Berg River. The storm water flow of site will link to regional drainage pathways within the area and therefore regional groundwater as a whole is vulnerable to contamination. Contaminants and pollutants from both point and diffuse sources would quickly enter the regional groundwater system. Any aquifers in the area are likely to be in hydraulic continuity with the Berg River groundwater regime.**
Extent and duration of impact:	**Extent 1 (Footprint) & Duration 5 (will not cease)**
Consequence of impact or risk:	**Possible contamination of groundwater resources.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Pollution of water resources**
Cumulative impact prior to mitigation:	**Possible contamination of water resources.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Mitigation measures outlined in EMP, attached as Appendix H, shall be adhered to.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**Possible contamination of groundwater resources.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**

Alternative 1 : Preferred Layout	**Geographical and Physical Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Impact on surrounding and municipal planning policies and guidelines.**
Nature of impact:	**The site is already operated and developed as a piggery.**
Extent and duration of impact:	**Extent 1 (Footprint) & Duration 1 (0 – 1 years)**
Consequence of impact or risk:	**Possible impact on surrounding and municipal planning policies and guidelines.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Impact on surrounding and municipal planning policies and guidelines.**
Cumulative impact prior to mitigation:	**Impact on surrounding and municipal planning policies and guidelines.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Rezoning application in process to be approved and that the conditions associated with the approved rezoning are implemented and adhered to.**
Residual impacts:	**Impact on surrounding and municipal planning policies and guidelines.**
Cumulative impact post mitigation:	**Possible impact on surrounding and municipal planning policies and guidelines.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Impact on surrounding and municipal planning policies and guidelines.**

Nature of impact:	**The site is already operated and developed as a piggery.**
Extent and duration of impact:	**Extent 1 (Footprint) & Duration 1 (0 – 1 years)**
Consequence of impact or risk:	**Possible impact on surrounding and municipal planning policies and guidelines.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Impact on surrounding and municipal planning policies and guidelines.**
Cumulative impact prior to mitigation:	**Impact on surrounding and municipal planning policies and guidelines.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Rezoning application in process to be approved and that the conditions associated with the approved rezoning are implemented and adhered to.**
Residual impacts:	**Impact on surrounding and municipal planning policies and guidelines.**
Cumulative impact post mitigation:	**Possible impact on surrounding and municipal planning policies and guidelines.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Impact on surrounding and municipal planning policies and guidelines.**
Nature of impact:	**The site is already operated and developed as a piggery.**
Extent and duration of impact:	**Extent 1 (Footprint) & Duration 1 (0 – 1 years)**
Consequence of impact or risk:	**Possible impact on surrounding and municipal planning policies and guidelines.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Impact on surrounding and municipal planning policies and guidelines.**
Cumulative impact prior to mitigation:	**Impact on surrounding and municipal planning policies and guidelines.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Rezoning application in process to be approved and that the conditions associated with the approved rezoning are implemented and adhered to.**
Residual impacts:	**Impact on surrounding and municipal planning policies and guidelines.**
Cumulative impact post mitigation:	**Possible impact on surrounding and municipal planning policies and guidelines.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**

Alternative 1 : Preferred Layout	**Socio-Economic Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Increased jobs**
Nature of impact:	**Temporary construction jobs will be created. The locals may not have sufficient skills to utilize the employment opportunities and "others (work force and job seekers)" may be employed from outside the community.**
Extent and duration of impact:	**Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)**
Consequence of impact or risk:	**Influx of contract workers due to lack of skills.** **Influx of job seekers due to jobs created.** **Littering.**

Probability of occurrence:	**4 (most likely)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Loss of significantly impacted upon job opportunities.**
Cumulative impact prior to mitigation:	**Loss of significantly impacted upon job opportunities.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low (positive)**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Local contractors, employing or seeking to employ local (historically disadvantaged individuals (HDIs) from the region who are suitably qualified, should get preference.** **The municipality, local community and local community organizations should be informed of the project and potential job opportunities by the developer.**
Residual impacts:	**Loss of significantly impacted upon job opportunities.**
Cumulative impact post mitigation:	**Loss of significantly impacted upon job opportunities.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low (positive)**
OPERATIONAL PHASE	
Potential impact and risk:	**Increased jobs**
Nature of impact:	**Operational jobs will be created. The locals may not have sufficient skills to utilize the employment opportunities and "others (work force and job seekers)" may be employed from outside the community.**
Extent and duration of impact:	**Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)**
Consequence of impact or risk:	**Influx of contract workers due to lack of skills.** **Influx of job seekers due to jobs created.** **Littering.**
Probability of occurrence:	**4 (most likely)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Loss of significantly impacted upon job opportunities.**
Cumulative impact prior to mitigation:	**Loss of significantly impacted upon job opportunities.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low (positive)**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Local contractors, employing or seeking to employ local (historically disadvantaged individuals (HDIs) from the region who are suitably qualified, should get preference.** **The municipality, local community and local community organizations should be informed of the project and potential job opportunities by the developer.**
Residual impacts:	**Loss of significantly impacted upon job opportunities.**
Cumulative impact post mitigation:	**Loss of significantly impacted upon job opportunities.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low (positive)**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Increased jobs**
Nature of impact:	**Temporary construction jobs will be created. The locals may not have sufficient skills to utilize the employment opportunities and "others (work force and job seekers)" may be employed from outside the community.**
Extent and duration of impact:	**Extent 2 (On site or within 100 m of the site) & Duration 1 (0 – 1 years)**
Consequence of impact or risk:	**Influx of contract workers due to lack of skills.** **Influx of job seekers due to jobs created.** **Littering.**
Probability of occurrence:	**4 (most likely)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**Loss of significantly impacted upon job opportunities.**

Cumulative impact prior to mitigation:	**Loss of significantly impacted upon job opportunities.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low (positive)**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Local contractors, employing or seeking to employ local (historically disadvantaged individuals (HDIs) from the region who are suitably qualified, should get preference.** **The municipality, local community and local community organizations should be informed of the project and potential job opportunities by the developer.**
Residual impacts:	**Loss of significantly impacted upon job opportunities.**
Cumulative impact post mitigation:	**Loss of significantly impacted upon job opportunities.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low (positive)**

Alternative 1 : Preferred Layout	**Socio-Economic Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**Traffic Impacts**
Nature of impact:	**The construction machinery will only have a traffic impact on delivery to, and collection from the site and are therefore regarded as negligible.**
Extent and duration of impact:	**Extent 2 (On site or within 100 m of the site) & Duration 2 (2 – 5 years)**
Consequence of impact or risk:	**The construction machinery will only have a traffic impact on delivery to, and collection from the site and are therefore regarded as negligible.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.**
Cumulative impact prior to mitigation:	**The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Avoid peak traffic hours (07h00 – 08h00 and 17h00 – 18h00) as far as possible**
Residual impacts:	**The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.**
Cumulative impact post mitigation:	**The minor increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low, this cumulative impact is not significant.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
OPERATIONAL PHASE	
Potential impact and risk:	**Traffic Impacts**
Nature of impact:	**Increased traffic due to the operation activities requiring various vehicles to come onto and leave the site.**
Extent and duration of impact:	**Extent 2 (On site or within 100 m of the site) & Duration 5 (Will not cease)**
Consequence of impact or risk:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the expansion.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**

Degree to which the impact can be reversed:	**High**
Indirect impacts:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the expansion.**
Cumulative impact prior to mitigation:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the expansion.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**None**
Residual impacts:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the expansion.**
Cumulative impact post mitigation:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the expansion.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**Traffic Impacts**
Nature of impact:	**The construction machinery will only have a traffic impact on delivery to, and collection from the site and are therefore regarded as negligible.**
Extent and duration of impact:	**Extent 2 (On site or within 100 m of the site) & Duration 2 (2 – 5 years)**
Consequence of impact or risk:	**The construction machinery will only have a traffic impact on delivery to, and collection from the site and are therefore regarded as negligible.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the expansion.**
Cumulative impact prior to mitigation:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the expansion.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Avoid peak traffic hours (07h00 – 08h00 and 17h00 – 18h00) as far as possible**
Residual impacts:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the**

	expansion.
Cumulative impact post mitigation:	**The increase in traffic volumes at certain times of day will add to the existing traffic volumes. As the existing traffic volumes are relatively low. The expansion will generate atotal of 676 trips per year. The current road infrastructure and maintenance schedule will be sufficient to accommodate the estra trips generated as a result of the expansion.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**

Alternative 1 : Preferred Layout	**Cultural-Historical Impacts**
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	**The potential impact of the proposed development on archaeological, paleontological and heritage remains.**
Nature of impact:	**The potential impact of the proposed development on archaeological, paleontological and heritage remains**
Extent and duration of impact:	**Extent 1 (Footprint) & Duration 5 (Will not cease)**
Consequence of impact or risk:	**The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.**
Cumulative impact prior to mitigation:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Should any burials, fossils or other historical material be encountered during construction, work must cease immediately and HWC must be contacted.**
Residual impacts:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Cumulative impact post mitigation:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
OPERATIONAL PHASE	
Potential impact and risk:	**The potential impact of the proposed development on archaeological, paleontological and heritage remains.**
Nature of impact:	**The potential impact of the proposed development on archaeological, paleontological and heritage remains**
Extent and duration of impact:	**Extent 1 (Footprint) & Duration 5 (Will not cease)**
Consequence of impact or risk:	**The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.**
Cumulative impact prior to mitigation:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
Degree to which the impact can be avoided:	**High**

Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Should any burials, fossils or other historical material be encountered during construction, work must cease immediately and HWC must be contacted.**
Residual impacts:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Cumulative impact post mitigation:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**
DECOMMISSIONING AND CLOSURE PHASE	
Potential impact and risk:	**The potential impact of the proposed development on archaeological, paleontological and heritage remains.**
Nature of impact:	**The potential impact of the proposed development on archaeological, paleontological and heritage remains**
Extent and duration of impact:	**Extent 1 (Footprint) & Duration 5 (Will not cease)**
Consequence of impact or risk:	**The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.**
Probability of occurrence:	**2 (some possibility, but low likelihood)**
Degree to which the impact may cause irreplaceable loss of resources:	**High**
Degree to which the impact can be reversed:	**High**
Indirect impacts:	**The proposed development, related facilities and infrastructure will have no impact on the cultural-historical aspects.**
Cumulative impact prior to mitigation:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**16 – Low**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**High**
Proposed mitigation:	**Should any burials, fossils or other historical material be encountered during construction, work must cease immediately and HWC must be contacted.**
Residual impacts:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Cumulative impact post mitigation:	**Destruction of cultural-historical features at the site will contribute to the loss of such features in the general area due to other non-related activities. This can at all times be mitigated to prevent/ minimise the loss of such features.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**8 – Low**

(c) Provide a summary of the site selection matrix.

No site selection matrix was undertaken. No site alternatives have been proposed for this project as the purpose of this application is for the expansion of the existing piggery infrastructure.

(d) Outcome of the site selection matrix.

Not Applicable.

3. SPECIALIST INPUTS/STUDIES, FINDINGS AND RECOMMENDATIONS

Note: Specialist inputs/studies must be attached to this report as **Appendix G** and must comply with the content requirements set out in Appendix 6 of the EIA Regulations, 2014 (as amended). Also take into account the Department's Circular EADP 0028/2014 (dated 9 December 2014) on the "*One Environmental Management System*" and the EIA Regulations, 2014, any subsequent Circulars, and guidelines available on the Department's website (**http://www.westerncape.gov.za/eadp**).

Provide a summary of the findings and impact management measures identified in any specialist report and an indication of how these findings and recommendations have been included in the BAR.

None at this stage. All the impacts was assessed and mitigation and management measures included directly into the BAR report.

4. ENVIRONMENTAL IMPACT STATEMENT

Provide an environmental impact statement of the following:

(i) A summary of the key findings of the EIA.		
The assessment of these impacts before and after recommended mitigation is summarised in the table below. After mitigation, none of the impacts are assessed as being above LOW significance. Construction phase: • Disturbance to subsurface geological layers (low impact before mitigation and low impact with mitigation measures); • Soil erosion and dust - (Low impact before mitigation and low impact with mitigation measures); • Impact of construction activities on surface and underground water pollution - (High impact before mitigation and low impact with mitigation measures); • Impact on Drainage Line / Groundwater resources - (High impact before mitigation and low impact with mitigation measures); • Impact on surrounding and municipal planning policies and guidelines - (low impact before mitigation and low impact with mitigation measures); • Impact on the indigenous terrestrial flora and habitat present in the area. Impact on the naturally occurring fauna present in the area - (Low impact before mitigation and low impact with mitigation measures); • Increased jobs - (No impact before mitigation and positive impact with mitigation measures); • Increased traffic due to the construction activities requiring various vehicles to come onto and leave the site - (Low impact before mitigation and low impact with mitigation measures); • The potential impact of the proposed development on archaeological, paleontological and heritage remains - (Low impact before mitigation and low impact with mitigation measures); Operational phase: • Disposal of biodegradable wastewater - (High impact before mitigation and low impact with mitigation measures); • Soil erosion and dust - (low impact before mitigation and low impact with mitigation measures); • Impact of operation activities on surface and underground water pollution - (High impact before mitigation and low impact with mitigation measures); • Impact on Drainage Line / Groundwater resources - (High impact before mitigation and low impact with mitigation measures); • Impact on surrounding land use and its potential effect on surrounding environment - (low impact before mitigation and low impact with mitigation measures); • Impact on the indigenous terrestrial flora and habitat present in the area. Impact on the naturally occurring fauna present in the area - (Low impact before mitigation and low impact with mitigation measures); • Increased jobs - (No impact before mitigation and positive impact with mitigation measures); • Increased traffic due to the operation activities requiring various vehicles to come onto and leave the site - (Low impact before mitigation and low impact with mitigation measures); • The potential impact of the proposed maintenance activities on archaeological, paleontological and heritage remains - (Low impact before mitigation and low impact with mitigation measures); Decommissioning phase: Similar to impacts associated with construction phase.		
(ii) Has a map of appropriate scale been provided, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers?	YES	~~NO~~
(iii) A summary of the positive and negative impacts that the proposed development and alternatives will cause in the environment and community.		
The assessment of these impacts before and after recommended mitigation is summarised in the		

table below. After mitigation, none of the impacts are assessed as being above LOW significance.

Construction phase:

- Disturbance to subsurface geological layers (low impact before mitigation and low impact with mitigation measures);
- Soil erosion and dust - (Low impact before mitigation and low impact with mitigation measures);
- Impact of construction activities on surface and underground water pollution - (High impact before mitigation and low impact with mitigation measures);
- Impact on Drainage Line / Groundwater resources - (High impact before mitigation and low impact with mitigation measures);
- Impact on surrounding and municipal planning policies and guidelines - (low impact before mitigation and low impact with mitigation measures);
- Impact on the indigenous terrestrial flora and habitat present in the area. Impact on the naturally occurring fauna present in the area - (Low impact before mitigation and low impact with mitigation measures);
- Increased jobs - (No impact before mitigation and positive impact with mitigation measures);
- Increased traffic due to the construction activities requiring various vehicles to come onto and leave the site - (Low impact before mitigation and low impact with mitigation measures);
- The potential impact of the proposed development on archaeological, paleontological and heritage remains - (Low impact before mitigation and low impact with mitigation measures);

Operational phase:

- Disposal of biodegradable wastewater - (High impact before mitigation and low impact with mitigation measures);
- Soil erosion and dust - (low impact before mitigation and low impact with mitigation measures);
- Impact of operation activities on surface and underground water pollution - (High impact before mitigation and low impact with mitigation measures);
- Impact on Drainage Line / Groundwater resources - (High impact before mitigation and low impact with mitigation measures);
- Impact on surrounding land use and its potential effect on surrounding environment - (low impact before mitigation and low impact with mitigation measures);
- Impact on the indigenous terrestrial flora and habitat present in the area. Impact on the naturally occurring fauna present in the area - (Low impact before mitigation and low impact with mitigation measures);
- Increased jobs - (No impact before mitigation and positive impact with mitigation measures);
- Increased traffic due to the operation activities requiring various vehicles to come onto and leave the site - (Low impact before mitigation and low impact with mitigation measures);
- The potential impact of the proposed maintenance activities on archaeological, paleontological and heritage remains - (Low impact before mitigation and low impact with mitigation measures);

Decommissioning phase:
Similar to impacts associated with construction phase.

5. IMPACT MANAGEMENT, MITIGATION AND MONITORING MEASURES

(a) Based on the assessment, describe the impact management, mitigation and monitoring measures as well as the impact management objectives and impact management outcomes included in the EMPr. The EMPr must be attached to this report as Appendix H.

The key mitigation measure is impact avoidance. Where adverse impacts cannot reasonably be prevented, construction and operations should be managed through the effective implementation of the EMP with a strong emphasis on post-construction rehabilitation and operational maganement and monitoring. Please refer to the EMP for more details on the mitigation and management measures.

(b) Describe any provisions for the adherence to requirements that are prescribed in a Specific Environmental Management Act relevant to the listed activity or specified activity in question.

The Water Use Authorization must be authorized and the conditions of this authorization must be

adhered to.

(c) Describe the ability of the applicant to implement the management, mitigation and monitoring measures.

The applicant is the operator of the existing piggery and does have the financial means to implement the conditions of the EA and Water Use Authorization together with the management, mitigation and management measures included in the EMPr.

(d) Provide the details of any financial provisions for the management of negative environmental impacts, rehabilitation and closure of the proposed development.

None at this stage.

(e) Describe any assumptions, uncertainties, and gaps in knowledge which relate to the impact management, mitigation and monitoring measures proposed.

EAP is only knowledgeable with regards to the environmental impacts, biodiversity and ecosystems aspects.

In undertaking the investigation and compiling this report, the following has been assumed:

- The information provided by the client is accurate and unbiased;
- The scope of this investigation is to assess the direct and cumulative environmental impacts associated with the development; and
- Should the proposed project be authorised, the applicant will incorporate the recommendations and mitigation measures outlined in this BAR, the EMP and the EA into the detailed design and construction contract specifications and operational management system for the proposed project.

SECTION H: RECOMMENDATIONS OF THE EAP AND SPECIALISTS

(a) In my view as the appointed EAP, the information contained in this BAR and the documentation attached hereto is sufficient to make a decision in respect of the listed activity(ies) applied for.	YES	~~NO~~

(b) If the documentation attached hereto is sufficient to make a decision, please indicate below whether, in your opinion, the listed activity(ies) should or should not be authorised:		
Listed activity(ies) should be authorised:	YES	~~NO~~
Provide reasons for your opinion		
Nine potential environmental impacts were assessed for this report, ranging from habitat loss to operational effects. Under the construction phase, 2 was rated having high impacts before mitigation that is reduced to low after mitigation and the other s all were rated having a low impact. In the Operational Phase, three of the nine impacts identified was rated having a high impact rating before mitigation that is reduced to low with the implementation of mitigation measures. Mitigation measures, both best practise and essential, include informing all staff about the suitable disposal of waste; reduce, reuse, recycle; the intentional disposal of any substance into the environment must be strictly prohibited, while accidental spillage must be prevented, contained and reported immediately; an environmental management and control plan (including procedures for remediation) should be implemented; all fuel and oil must be stored with adequate spill protection, and no leaking vehicles are to be permitted on site; to use bunding where possible, minimise top-soil run-off as much as possible and collect and dispose of polluted soil at appropriate bio-remediation sites; to use dust suppression techniques all dust generating surfaces and to enforce strict construction and private vehicle speed limits; and the immediate rehabilitation of any areas disturbed as a result of construction activities. Based on the impacts assessed in this report, it is recommended that the proposed development proceed with the implementation of strict environmentally responsible practices as outlined in the recommended mitigation measures.		
(c) Provide a description of any aspects that were conditional to the findings of the assessment by the EAP and Specialists which are to be included as conditions of authorisation.		
The monitoring and management requirements that will be captured in the Water Use Authorization issued by the Department of Water and Sanitation to protect the Berg River and surrounding area as well as the consent use conditions issued by Berg River Municipality in terms of the land use change		

application must be adhered to.		
(d) If you are of the opinion that the activity should be authorised, please provide any conditions, including mitigation measures that should in your view be considered for inclusion in an environmental authorisation.		
Recommended that the EA prescribe that: • Should any heritage artefacts be exposed during construction that all activities be stopped, and Heritage Western Cape contacted pre any further action being permitted. • The project implementation process should be subject to standard Environmental Management Programme prescripts and conditions under supervision of a competent and diligent ECO, during its construction and decommissioning phases. That the facility be audited on yearly bases by an external environmental auditor during operations.		
(e) Please indicate the recommended periods in terms of the following periods that should be specified in the environmental authorisation:		
i.	the period within which commencement must occur;	3 Years
ii.	the period for which the environmental authorisation is granted and the date on which the development proposal will have been concluded, where the environmental authorisation does not include operational aspects;	10 Years
iii.	the period for which the portion of the environmental authorisation that deals with non-operational aspects is granted; and	10 Years
iv.	the period for which the portion of the environmental authorisation that deals with operational aspects is granted.	NA

SECTION I: APPENDICES

The following appendices must be attached to this report:

APPENDIX			**Confirm that Appendix is attached**
Appendix A:	**Locality map**		Yes
Appendix B:	**Site development plan(s)**		Yes
	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;		Yes
Appendix C:	**Photographs**		Yes
Appendix D:	**Biodiversity overlay map**		Yes
Appendix E:	**Permit(s) / license(s) from any other Organ of State, including service letters from the municipality.**		Yes
	Appendix E1:	**Copy of comment from HWC.**	Yes
Appendix F:	**Public participation information: including a copy of the register of I&APs, the comments and responses report, proof of notices, advertisements and any other public participation information as is required in Section C above.**		Yes

Appendix G:	**Specialist Report(s)**	No
Appendix H :	**EMPr**	Yes
Appendix I:	**Additional information related to listed waste management activities (if applicable)**	No
Appendix J:	**If applicable, description of the impact assessment process followed to reach the proposed preferred alternative within the site.**	No
Appendix K:	**Any Other (if applicable).**	No

SECTION J: DECLARATIONS

TO BE PROVIDED WITH THE FINAL BAR