PROPOSED ELLIOT AGRICULTURAL DEVELOPMENT PROJECT ON VARIOUS PORTIONS OF FARM GROENTE FONTEIN AND FARM CLOETA

JUNE 2022

DRAFT BASIC ASSESSMENT REPORT

BIOBLUE
ENVIRONMENTAL SUSTAINABILITY

This document is submitted in support of an application for Environmental Authorization in terms of Section 24(5) of the National Environmental Management Act, Act 107 of 1998, as amended on behalf of Number Two Piggeries (Pty) Ltd.

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Province of the
EASTERN CAPE
ECONOMIC DEVELOPMENT,
ENVIRONMENTAL AFFAIRS & TOURISM

BASIC ASSESSMENT REPORT

(For official use only)

File Reference Number:	
NEAS Number:	
Date Received:	

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014 as amended, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 as amended and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. The report 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 report is in the form of a table that can extend itself as each space is filled with typing.
3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority **unless indicated otherwise by the Department**.
7. No faxed or e-mailed reports will be accepted **unless indicated otherwise by the Department**.
8. The report must be compiled by an independent environmental assessment practitioner (EAP).
9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	YES	

If YES, please complete form XX for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail

The proposed agricultural development will be comprised of a commercial piggery operation, a creamery, and a feed mill site. The applicant proposes to establish sustainable operations that utilize the "waste" generated by each operation, that would in normal circumstances be discarded or removed from site.

There is an existing crop farming and dairy operation on the various farm portions. With this proposed application the diary operations would produce milk for the proposed Creamery. The Creamery would then produce products such as yogurt and cheese. The whey that is normally a waste product will then be transported to the piggery operations as feed for the pigs.

In turn the piggery operations will produce biodegradable effluent that will be treated to a standard for re-use as an organic fertilizer by the dairy operations on their pastures and croplands. The feed mill will provide feed for the existing piggery and dairy operations in the region as well as the new proposed piggery operation.

The Proposed Piggery will have 3 types of Production Units:

1. Breeding Unit; (Site 1)
2. Weaner Unit (Site 2); and
3. Grower-Finishing/fattening Unit (Site 3).

The Creamery will consist of the following aspects (Site 4):

1. Processing Areas
2. Fat separation sumps
3. Cool storage areas
4. Boiler and coal storage area

The Feed Mill will consist of the following operational aspects:

1. Mixer

2. Dryer
3. Pellet Mill

The Creamery and Feed Mill will be on the same location next to one another.

The water for the proposed Feed Mill and Creamery will be abstracted from boreholes that have been identified by a Geo-hydrologist during a geo-physical survey. The boreholes are currently being yield tested according to DWS standards and a formal Geo-hydrological report will be submitted for comments and authorization.

The property already has existing electricity supply and additional solar panels will be installed on the roofs of all the operational units to ensure sustainable, green energy supply for the operational phase of the operations.

Piggery operation:

Breeding Unit consists of five sub-units, namely:

i. Farrowing: This unit will house 1026 sows (4 buildings);
ii. Early Gestation: This unit will house 1080 sows (1 building);
iii. Late Gestation: This unit will house 2530 sows (3 buildings);
iv. Heat Detection & Training: This unit will house sows and boars (2 buildings); and
v. Gilt Developer: This unit houses a range of weaners, growers and finishers (varying ages and sizes). In total 1050 sows and boars are kept in the gilt developer.

Fattening/Finishing units:

This unit houses growers from 11 weeks. The number of pigs held depends on the size of the animals. The fattening can hold an average of 1350 pigs per building. 28 Buildings = 37 800 pigs.

Weaner unit:

This unit is normally separate from the breeder and grower units to improve bio-security conditions; approximately 2740 weaners are placed in each unit. 7 Buildings = 19 180 in total.

Water:
New technologies that reduce water used includes the following:

a. a flushing system that uses gravity and a plug reduces the need for additional water to flush the effluent.

b. Calculated water consumption units that reduces water loss and efficiently maximizes the available water per animal according to its live cycle with minimal wastage. The new technologies include the following but not limited to the mentioned apparatus: state of the art drinking nipples, water catching trays, pipes, underground pipes will have almost no leaking problems.

c. Daily inspections will be conducted to ensure that the water and feeding systems is in optimal working condition.

Effluent:

The effluent will be reduced with modern technology due to:

a. No water required to flush that cause a reduction in effluent

b. Leaks are far less frequent compared to old piggery techniques and technology that cause a reduction in effluent

c. Less bedding material is required due to the modern slatted floorings.

d. The storage pits below the slat's aids in the anaerobic bacterial activity and aid in the treatment of the slurry and effluent. The pits make the management of effluent also easier. .

e. Special formulated rotations and modern buildings aid with the reduction in ammonia levels and certain omissions.

f. The anaerobically processed effluent will be gravity fed via enclosed piping to a sump and the screw press. The screw press separates the liquids and solids. The solids are sold as fertilizer. The liquids are moved with the aids of pipes toa lined slurry dam where it undergo further aerobic treatment. With this process all components off the waste is used either as sellable fertilizer or organic compost that are used on pastures and crops for feed production.

Figure 1: Images portraying a screw press system to be utilized on site

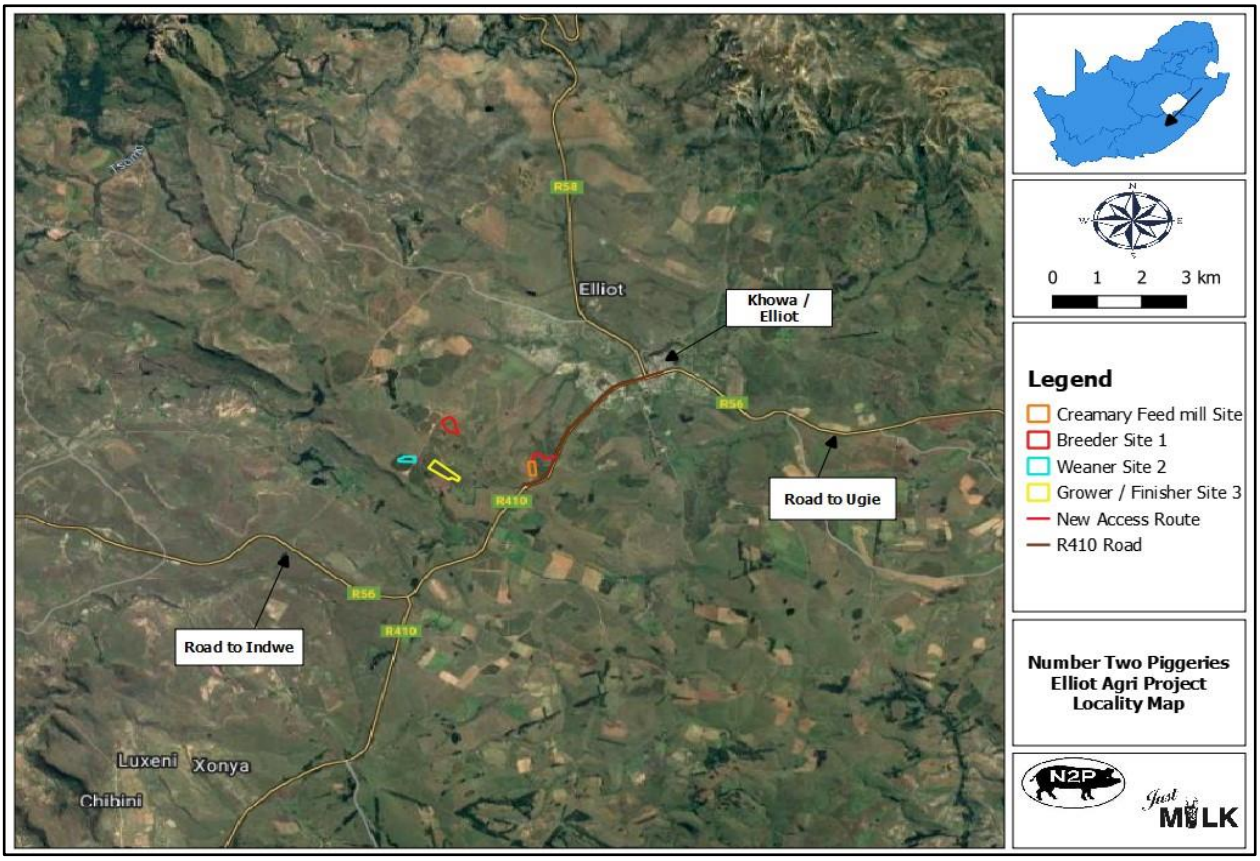


Figure 2: Location of proposed agricultural project

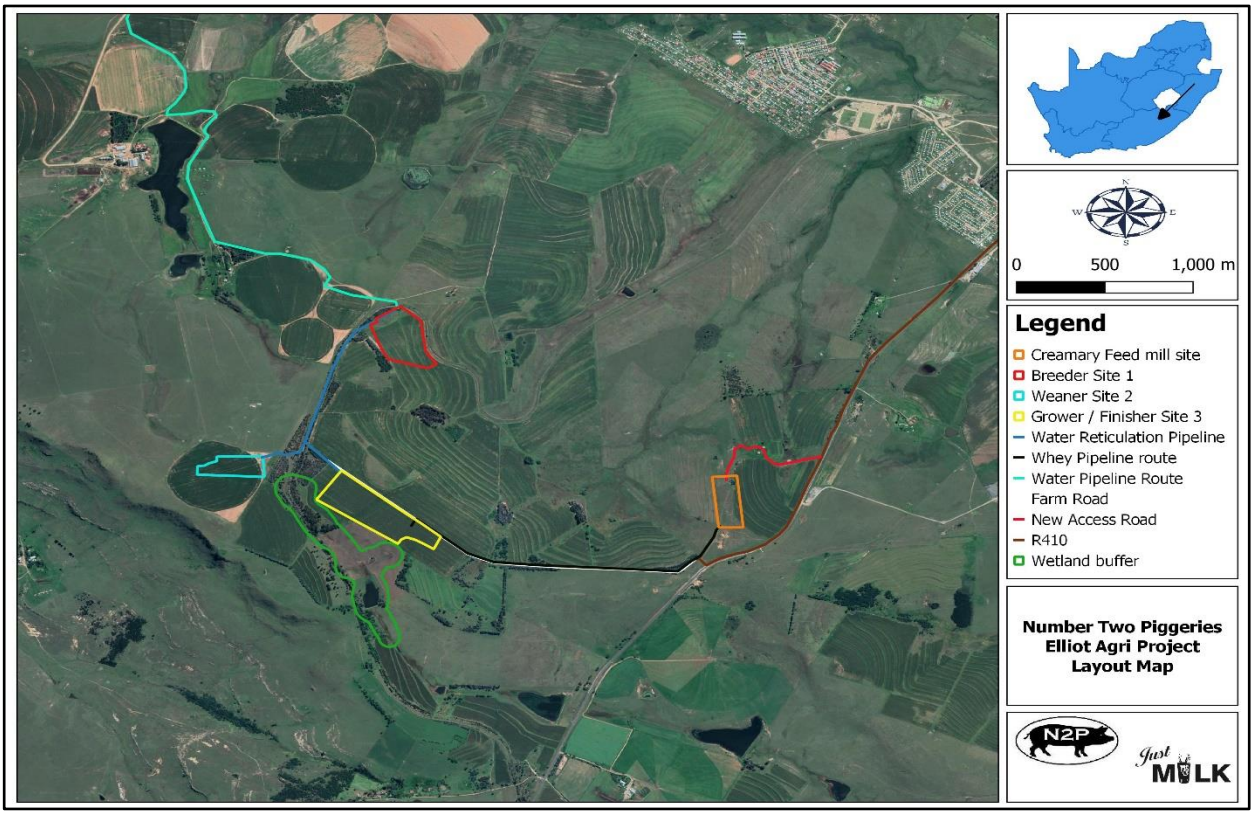


Figure 3: Layout map indicating the proposed layout of the agricultural project

Water for the Piggery operations is proposed to be extracted from a new proposed dam to be built within the Tsomo River. The proposed dam will be applied for as part of its own application. The property already has existing electricity connections, and the roofs of the piggery and creamery will be covered in solar panels to ensure the operations also have sustainable electricity supply.

There are four separate sites earmarked for development, three for the separate piggery units and 1 for the creamery and feed mill site. The following farms are affected:

Weaner Unit (Site 2)

On the RE and Portion 1 of Farm Cloeta 100 Elliot Rd - GPS Coordinates (Middle): 31°21'18.46"S, 27°47'29.36"E

Breeder Unit (Site 1)

Portion 1 of the Farm Groente Fontein 101 Elliot RD - GPS Coordinates (Middle): 31°20'48.06"S, 27°48'4.64"E

Grower & finisher Unit (Site 3):

Portion 1 of the Farm Groente Fontein 101 Elliot RD - GPS Coordinates (Middle): 31°21'26.38"S, 27°47'56.98"E

Creamery and Feed mill (Site 4)

Portion 5 of the Farm Groente Fontein 101 Elliot RD - GPS Coordinates: 31°21'26.00"S, 27°49'14.07"E.

These sections can be accessed from the R410. GPS Coordinates: 31°21’40.98”S, 27°49'9.54"E and a new access road is proposed at the following coordinates, but this will only be formalization of an existing road – GPS Coordinates: 31°21’16.17”S, 27°49’34.06”E.

It is envisaged that the following listed activities in terms of the EIA Regulations, 2014, as amended are triggered by the proposed development:

Table 1: Listed Activities triggered by the application

Activity No(s):	Basic Assessment Activity(ies) as set out in Listing Notice 1	Description of the portion of the proposed project to which the applicable listed activity relates.
4	The development and related operation of facilities or infrastructure for the concentration of animals in densities that exceed – (ii) 8 square meters per small stock unit and; (a) more than 1 000 units per facility excluding pigs where (b) applies; or (b)	The proposed commercial piggery development will be able to house 52 000 pigs and thus it triggers activity 4.

	more than 250 pigs per facility excluding piglets that are not yet weaned	
8	The development and related operation of hatcheries or agri-industrial facilities outside industrial complexes where the development footprint covers an area of 2 000 square meters or more.	The piggery operations are commercial, high-density operations and together with the proposed Creamery operations and the Feed Factory covers an area of more than 2 000 square meters.
9	The development of infrastructure exceeding 1 000 meters in length for the bulk transportation of water or stormwater – (i) with an internal diameter of 0.36 metres or more; or (ii) with a peak throughput of 120 litres per second or more	Most of the proposed pipelines will be on the edge of farm roads, but there are stretches of the lines that will run through natural areas and cultivated fields, thus triggering this activity.
10	The development and related operation of infrastructure exceeding 1 000 meters in length for the bulk transportation of sewage, effluent, process water, wastewater, return water, industrial discharge or slimes – (i) with an internal diameter of 0.36 meters or more, or (ii) with a peak throughput of 120 litres per second or more.	The piggery operations will generate biodegradable effluent that will be re-used as organic fertilizer within the agricultural operations. It is envisaged that pipelines be utilised to transport the treated effluent to the centre pivots on the farm at this stage.
24	The development of a road – (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 meters.	A new access road is planned for the Creamery and Feed Mill site. There is an existing farm road that will be formalized.
27	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation	The proposed Creamery and Feed Mill site will be situated on natural land and will require clearance of more than 1 ha.

During pre-application meeting discussions with the Department, it was stipulated that Listing Notice 3 Activity 4 and 12 can be removed as the Eastern Cape Province does not have a gazetted biodiversity plan.

The following activities are not included as per the decision of the EAP after discussions with the Department:

- Listing Notice 1 Activity 25: A treatment plant will be constructed at the Creamery operation to treat the effluent generated during the processing phase. However, this will not exceed 300 cubic meters per day.
- The proposed piggery operations will also not trigger a waste license but will need to conform to the National Norms and Standards for Organic Waste Composting. The slurry dams are also

licensed in terms of the Nation Water Act – Section 21(g) and authorised by the Civil Engineers of the Department.

- Waste generated by the proposed Creamery operations fall under Category B: General Waste – Business Waste b) Wastes from the preparation and processing of meat, fish and other foods of animal origin. (e) wastes from dairy product industry. Waste will only constitute effluent treatment and 94 – 96% will be re-usable clean water to re-use within the operations and only 6-4% will be waste sludge to be stored in Geo-bags and taken off site. Thus, after discussion with the Department this is not applied for as it is below the threshold of effluent treatment and no waste to be stored in lagoons.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;

There is **NO** alternative property. The current position of all the proposed piggery units has been determined beforehand by the client and the necessary adjustments made after specialist studies were conducted. The studies were done to determine all the sensitive environmental elements on the properties in question. Topography was also taken into account to help minimise any extra earthworks needed to lay the building foundations. The current property is already transferred onto the names of the applicant.

(b) the type of activity to be undertaken;

The applicant already has vast knowledge of the proposed activities. Other agricultural activities will not be met with the same enthusiasm and success. Therefore, there is not an alternative for the type of activity that the applicant is proposing. The applicant has built a team of companies and individuals that excel in the pig and dairy farming industries and by working together they have established successful farming operations that minimize waste generated and maximize re-use potential within their various operational aspects. The agricultural sector in South Africa is one of the most sustainable sectors and this sector needs to be developed and supported if more sustainable, long-term job opportunities are to be created and for the growth of the rural economies.

(c) the design or layout of the activity;

The applicant is flexible with small changes to the layout in terms of specific locality of the layout of the infrastructure. The infrastructure layout can be slightly moved if needed. Any changes in layout will be determined by the final specialist assessment results and proposed mitigation measures. But the basic design is fixed for optimal yield and specifically designed to accommodate minimum area for maximum yield and have basic hygiene, animal welfare and practicality in mind.

(d) the technology to be used in the activity;

Commercial piggery operations:

The applicant plans to utilize the latest available technology for the proposed development, similar to what has been installed in their existing Ida and Steynsburg operations that have been constructed in the past four years. The technology is in line with international standards and minimizes water use and optimizes electricity usage whilst ensuring that the welfare of the animals is top priority. Thus, there are no technology alternatives with regards to the piggery operations.

Creamery:
The main operational units of the creamery will be based on their current Cookhouse creamery operations with modern technology adjustments made. The technology alternatives for the creamery will be the different treatment aspects. The old methods of treatment of effluent is by utilizing fat traps and manual removal of the solids before the water is pumped to an evaporation dam.

With the country experiencing growing water stress situations and sustainable, environmentally friendly operations required to ensure longevity in any business, new treatment methods are being considered.

Treatment Proposal:

The long-term management plan aims at re-using the treated water in the production process or for human consumption. Immediate actions such as compliance to the Water-use License were also considered and test work showed that this can be achieved.

The current proposal contains a detailed plan and make provision for a complete functional treatment system, the installation of the system and commissioning and optimization. Several specialists provided inputs in design of the current plant, and based on experience on similar plants, the proposed methodology shows the highest success rate among similar applications.

Proposed Process:

- pH reduction: a pH below 4 is required to ensure that the emulsion of fat is destabilized. Dilute acid (sulphuric or hydrochloric acid) is required to reduce the pH. The pH will be controlled using a pH sensor and transmitter coupled with a metering pump.
- a metal salt, such as ferric chloride, is required to coagulate the fat emulsion.
- a flocculant is required to produce a suitable floc.
- the flocculated suspension will be treated in a dissolved air flotation (DAF) process to separate the suspension of flocculated material and the clean water.
- The floating sludge will be collected from the surface of the DAF and pumped into an anaerobic digester. We propose the use of bladder tanks, commercially known as “DAMSAK”, as vessels for the anaerobic digestion. The expected flow rate is typically 5% of the total flow which is equivalent to approximately 2 kL/d.
- The pH of the clean water from the DAF will be adjusted with soda-ash to ensure a neutral pH and to provide sufficient buffering capacity of the water.
- A COD of less than 900 mg/L has been achieved with the DAF tests conducted in our laboratory. This agrees with typical values observed with tests conducted on wastewater of similar industries. This water is not suitable for reuse. Considering that it will contain high ammonia concentrations, it will not be possible to disinfect the water. To improve the quality to a level acceptable for reuse as wash water, it should be treated in an aerobic biological process. This can be achieved by using four (4) of the available Jojo Tanks on site. The tanks will be partially filled with plastic carrier media to limit the footprint of the process and to ensure that the active biomass can survive variations in residual concentrations of sanitizers, should there be accidental spillages. A soluble COD value of less than 50 mg/L and low ammonia-concentrations can typically be achieved in this process.
- Surplus biomass (WAS) will be wasted into the sump and eventually be disposed of with the DAF sludge
- The overflow of the biological reactors will be clarified in a lamella settler. Settled sludge collected from the bottom of the settler will also be returned to the sump and finally be disposed of with the DAF sludge.
- The clear effluent will be pumped through dual media in-line filters containing activated carbon and sand to remove any suspended particles.

- The filtered effluent will be collected in another Jojo tank for storage. HTH floaters, or any acceptable similar disinfectant will be used to disinfect the water. The disinfected water quality will be acceptable for reuse as wash water.
- Should it be considered to improve the water quality any further for reuse for other applications, ultrafiltration, and even reverse osmosis (RO) will need to be considered. The cost to provide for ultrafiltration unit is included as an estimate of the expected cost should the technology be considered. This cost is based on similar recent detailed cost analysis for another client and excludes RO.

Phased Approach:

- **The first phase** will be for the design, construction and commissioning of the process that includes all the unit processes up to the pH neutralization and lamella settlers following the DAF and including the anaerobic digester but excluding de-chlorination. This water will be suitable for irrigation and dust suppression. The plant is currently not compliant to the Water use conditions; hence this step is of significant value and is considered the short-term solution.

- **The second phase** will include all the unit processes described in the first stage as well as the biological reactors, dual media filters and disinfection. This water will be suitable for floor and vehicle washing but not for human consumption. This is considered as the intermediate phase.

- **The third phase will include ultrafiltration and disinfection** and will be fully automated to ensure reliable operation. This water will be fit for human consumption. This is the long-term solution.

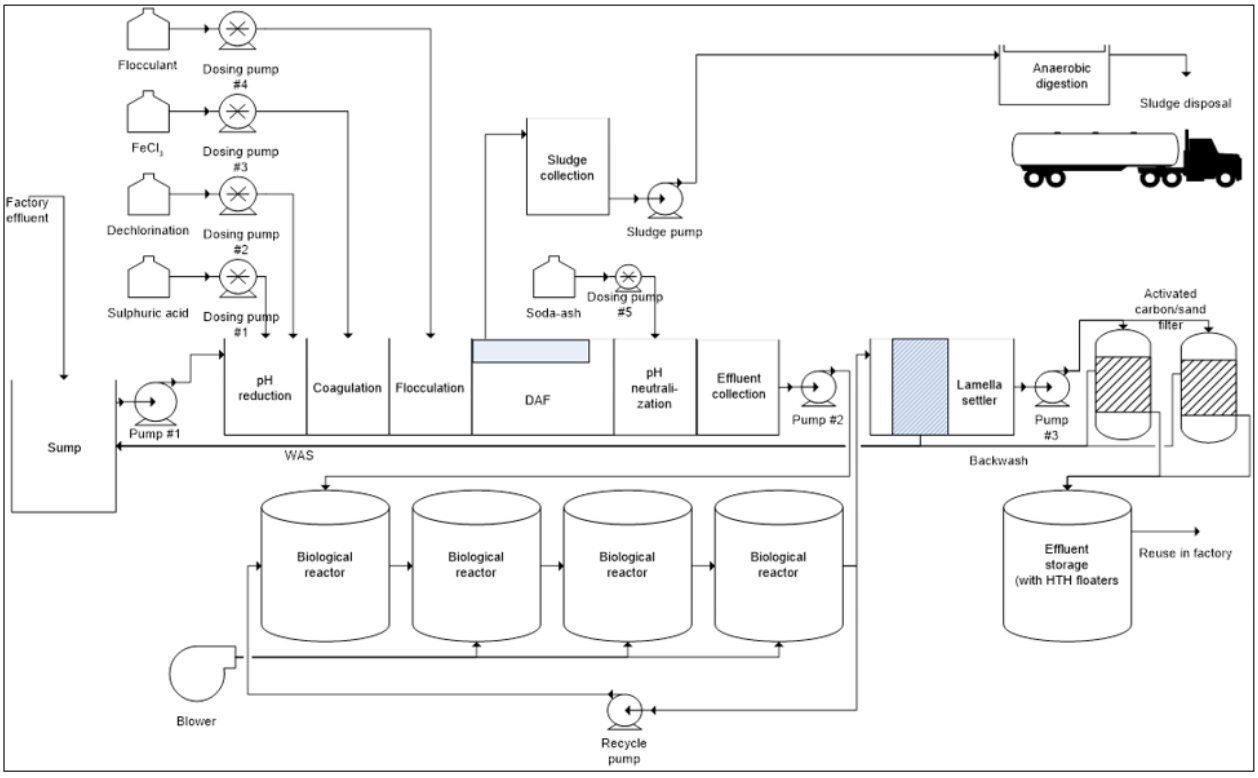


Figure 4: Phased approach for long-term water recovery plan

The applicant did a lot of research to optimise their agricultural practises and do plan on keeping their technology current. Together with inputs from engineers, water treatment experts and environmental specialists the applicants will aim to improve the agricultural operations as well as the entire farm environment to ensure that resources are protected and able to provide the required ecosystem services, that their operations remain sustainable, economically and environmentally viable in the long-term.

(e) the operational aspects of the activity; and

At this stage the client already has and vast understanding and markets for the current operation. They already maximized the production on all their existing piggery and creamery operations and exactly knows how to optimize every operational aspect. Currently the scale of the operation maximises income and reduces expenses and waste. Changing the scale operation will dramatically reduce the effectiveness of the operation. Any changes in the operation levels and technology may, according to the applicant, lower the level of efficiency and standards in this profession and field. Therefore, operational aspects of a lower key or standard will jeopardize the long-term sustainability of this pork, feed and diary enterprise. The operational alternative will therefore **NOT** be assessed.

(f) the option of not implementing the activity.

The property is already and economical functioning farm. To be economically sustainable agricultural practises need to provide an income to keep on thriving. A “DO NOTHING” alternative would be not to expand the operations on the current properties and not construct the proposed infrastructure. The area will be more effectively used as an intergrade agricultural party that uses different economical units compared to singles economical unit practise. This setting is not orientated for residential use; therefore, no adequate services are in place to accommodate large volumes of sewage and domestic waste. On the other hand, no additional job opportunities will be created, and no contribution will be made to the upliftment of the community and infrastructure development. Thus the “No-Go” alternative will result in no additional negative impacts on the environment but will also result in no positive impacts on socio-economic aspects either.

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Paragraphs 3 – 13 below should be completed for each alternative.

3. ACTIVITY POSITION

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.
List alternative sites if applicable.

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1(preferred or only site alternative) **Site 1** Breeder Unit of Piggery	31°	20'48.06"	27°	48'4.64"
Site 2 Weaner Unit of Piggery	31°	21'18.46"	°27°	47'29.36"
Site 3 Finisher Unit of Piggery	31°	21'26.38"	°27°	47'56.98"
Site 4 Creamer and Feed mill	31°	21'26.00"	27°	49'14.07"
Alternative S2 (if any)				
Alternative S3 (if any				

Refer to Figure 2 above

The sites were specifically chosen to minimize the impact on the surrounding vegetation and the numerous wetland systems. Currently there are no alternative locations for the specific site because they're located on the areas the least amount of negative impact would occur**.**

In the case of linear activities: Please Refer to Addendum A1 – Pipeline Routes

Alternative:	**Latitude (S):**		**Longitude (E):**	
Alternative S1 (preferred or only route alternative)				
• Starting point of the activity				
• End point of the activity				
Alternative S2 (if any)				
• Starting point of the activity				
Alternative S3 (if any)				
• Starting point of the activity				
• Middle point of the activity				
• End point of the activity				

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Site 1 Breeder Unit of Piggery located on Portion 1 of Groente Fontein 101	96 788 m^2

Site 2 Weaner Unit of Piggery located on **RE of Cloeta 100 and Portion 1 of Cloeta** 100	46 433 m^2
Site 3 Finisher Unit of Piggery located on Portion 1 of Groente Fontein 101	193 864 m^2
Site 4 Creamery and Feed Mill Located on Portion 5 of **Groente Fontein 101**	51 972 m^2
Alternative A3	
Alternative A2	

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 Surface Water Process Pipeline	3 548m
Alternative A2 (if any) Pipeline 2 – Piggery Water Reticulation 1	1 419m
Alternative A3 (if any) Pipeline 3 – Piggery Water Reticulation 2	308m
Whey Pipeline Route:	2 100m
Treated Slurry Pipeline Route 1:	2 160m
Treated Slurry Pipeline Route 2:	2 830m
Treated Slurry Pipeline Route 3:	2 120m
Treated Slurry Pipeline Route 4:	1 220m

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Alternative A1 (preferred activity alternative)	
Alternative A2 (if any	
Alternative A3 (if any	
m	
Alternative**: N/A**	

5. SITE ACCESS (ALTERNATIVE / ADDITIONAL ROUTE SET TO BE CONSTRUCTED FOR CREAMERY SITE)

Does ready access to the site exist?	YES
If NO, what is the distance over which a new access road will be built	820m

Site access Map
Indicating the first access point to Project
Describe the type of access road planned:

Access to the property:

The current access road is on the R410 road driving from Khowa to Indwe. Indicated on the map below in brown and then connecting to the farm road in white. It is approximately 4,5km outside of Khowa. The additional access road proposed is an existing road proposed to be formalised for the Creamery and Feed Mill site. This access point is situated 990m from the existing access road as indicated in red on the map below.

Existing Access Road: 31°21'40.69"S, 27°49'9.30"E
New Proposed Access Road: 31°21'15.72"S, 27°49'33.77"E

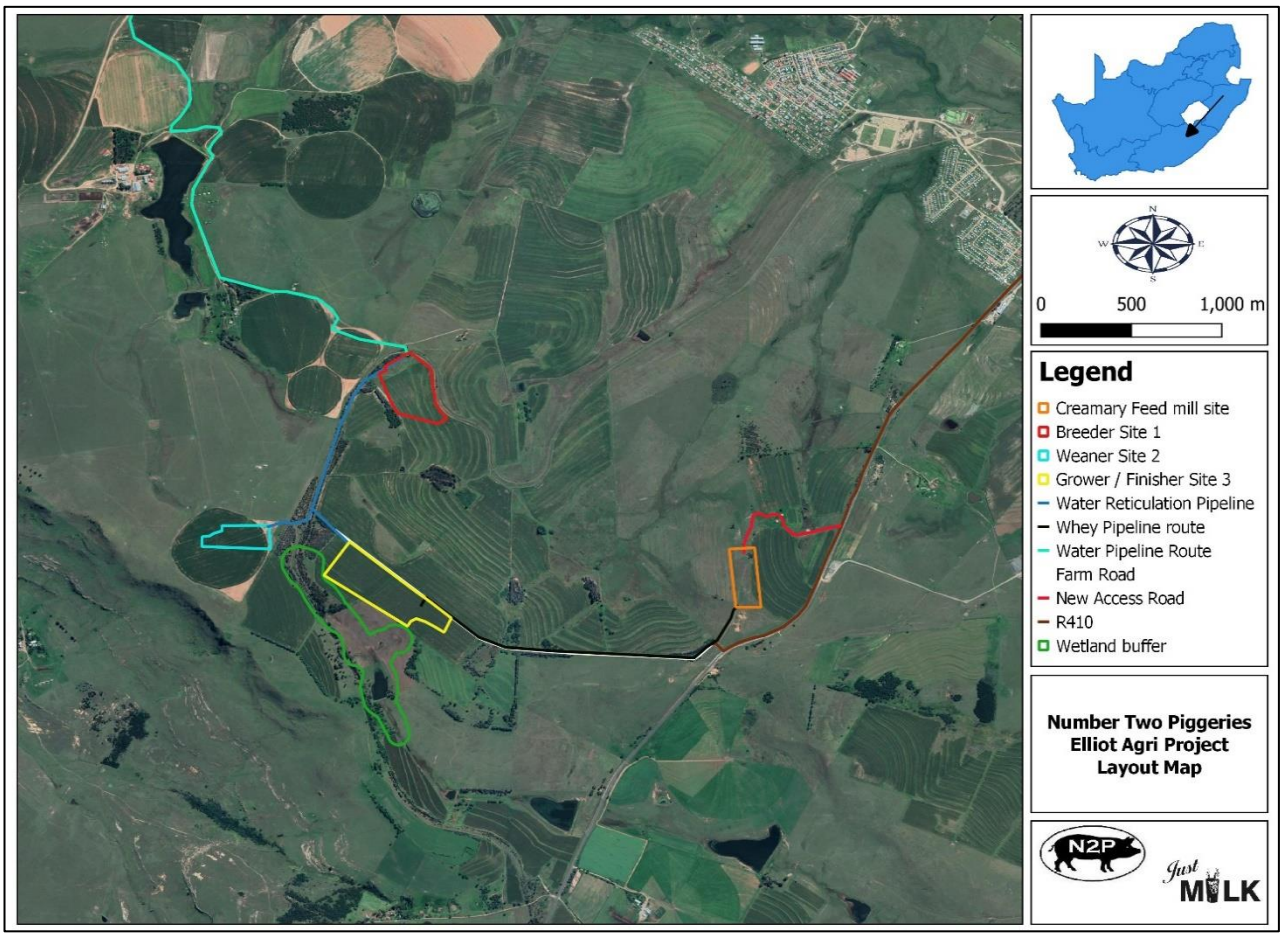


Figure 5: Indicating the first access point towards the proposed Agricultural Development

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as **Appendix A** to this document.

The site or route plans must indicate the following:

6.1 the scale of the plan which must be at least a scale of 1:500;

6.2 the property boundaries and numbers of all the properties within 50 meters of the site;

6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;

6.4 the exact position of each element of the application as well as any other structures on the site;

6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;

6.6 all trees and shrubs taller than 1.8 meters;

6.7 walls and fencing including details of the height and construction material;

6.8 servitudes indicating the purpose of the servitude;

6.9 sensitive environmental elements within 100 meters of the site or sites including (but not limited thereto): **Please see specialist reports attached, in this regard.**

- rivers;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with

6.9 for gentle slopes the 1 meter contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.10 the positions from where photographs of the site were taken.

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

Refer to Appendix B

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

Refer to Appendix C

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	±R400 million	
What is the expected yearly income that will be generated by or as a result of the activity?	R235 million	
Will the activity contribute to service infrastructure?	YES	
Is the activity a public amenity?		NO
How many new employment opportunities will be created in the development phase of the activity?	200	
What is the expected value of the employment opportunities during the development phase?	R13.5 million	
What percentage of this will accrue to previously disadvantaged individuals?	70%	
How many permanent new employment opportunities will be created during the operational phase of the activity?	140 - 160	
What is the expected current value of the employment opportunities during the first 10 years?	±R70 million	
What percentage of this will accrue to previously disadvantaged individuals?	70%	

9(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

Chris Hani District has a higher-than-average unemployment rate of 69.7 % according to the Chris Hani DDM one plan of August 2021. One of the sectors that were identified in the plan that could expand is agriculture.

This project is a commercial agriculture project that will invest millions into new infrastructure and create 200 to 300 temporary job opportunities (welders, builders, electricians and plumbers) during the construction phase of the development and 160 permanent job opportunities during the operational phase. The proposed project site is situated just outside of the town of Khowa (Elliot) and these job opportunities will make a great difference in the lives of the local communities as job opportunities are scarce within the rural regions of the Eastern Cape as can be seen by the infrastructure and supply problems facing these small towns.

The investments made into this project will also create indirect job opportunities such as trucking and building supply companies that will be contracted for the construction phase of the project. Various suppliers visiting the project site will stay over in the town, leading to additional income for the various bed and breakfast establishments and filling stations.

The project will also contribute to the local GDP which could allow for the upgrading of existing road, housing and service delivery infrastructure that is currently requiring major upgrades. It will lead to community upliftment, which will in turn lead to the local people being able to spend more of their earnings at the shops and establishments in town, resulting in a positive impact on the whole of the local economy.

The expansion in agricultural activities will also contribute to the food security in the province as well as nationally as their will be more meat and dairy products available for the local market. With recent international events highlighting the volatile global food system, it is of utmost importance that our country can provide in the needs of the people, without having to rely on imports. The focus of the agricultural sector should also be to grow the sector to be a net exporter of food as this will allow additional income to be generated by the local producers and also increase the sustainability of the sector.

Number two Piggeries (Pty) Ltd. also have several community development proposals in the form of creating educational opportunities and schools in the greater region. The company prides itself in investing in new students by creating opportunities for them to expand their knowledge and skillset within the sector and by also providing them with job opportunities when they have finished their qualifications. All the employees that are part of the larger group have the opportunity to learn new skills within the various working environments of the farming operations by receiving continuous training opportunities.

With the increase in employment and agricultural opportunities the project has a great benefit for the local community and greater region.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The development aims to achieve the goals of social, economic, and environmental sustainability. It will assist with land use efficiency. The application will remain within infrastructural guidelines and capacity, there is also a demand and need for a facility of this nature. The proposed agricultural development will create numerous job opportunities during the construction and operational phases as indicated above. These job opportunities will greatly benefit the local communities as it gives them access to new and much needed job opportunities within an area that has experienced limited growth during the past few years.

The feed mill will be utilized for the internal purposes of the farming operations but will be large enough to be able to supply feed to other farming operations within the region and offer them more competitive prices as the products don't have to be hauled over long distances.

The applicant is also willing to promote communities with different investments like schools, education opportunities and other development depending on the need of the region and available funds Inputs from the local municipality.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

Numerous employment opportunities, during the planning, construction and operational phases.

Skills development during construction and operational phase of the project;

Community development and increase in employment opportunities and education;

Increase in the local economy of the project that could enable the upgrading of infrastructure, and service delivery within the municipality.

Better housing infrastructure for some of the employees.

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended).	**DFFE**	**1998**
The Constitution of South Africa Act, 1998 (Act No.108 of 1996).	**South African Government**	**1996**
R. 326 National Environmental Management Act (107/1998): Environmental Impact Assessment Regulations, 2017	**DFFE**	**2017**
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	**Department of Labour**	**1993**
National Environmental Management Waste Act: 2008 (Act No. 59 0f 2008)	**DEDEAT**	**2008**
National Water Act, 1998 (Act 36 of 1998)	**Department of Water and Sanitation**	**1998**
The Constitution of South Africa Act, 1998 (Act No. 108 of 1996) South African Government 1996	**South African Government**	**1996**
Environmental Impact Assessment Regulations of 2014, as amended	**DFFE & DEDEAT**	**2017**
Conservation of Agricultural Resources Act (43 of 1983)	**DRDAR**	**1983**
National Heritage Resources Act (25 of 1999)	**South African Heritage Resources Agency**	**1999**
Procedures for the Assessment And Minimum Criteria For Reporting On Identified Environmental Themes In Terms Of Sections 24(5)(A) And (H) And 44 Of The National Environmental Management Act, 1998, When Applying For Environmental Authorisation GN. R. 320; GG. No 43110	**DFFE & DEDEAT**	**2020**
Procedures for the Assessment And Minimum Criteria For Reporting On Identified Environmental Themes In Terms Of Sections 24(5)(A) And (H) And 44 Of The National Environmental Management Act, 1998, When Applying For Environmental Authorisation DFFE & DEDEAT 2020 Page 17 of 72 GN. R. 1150; GG. No 43855	**DFFE & DEDEAT**	**2020**

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES [redacted]
If yes, what estimated quantity will be produced per month?	10 - 20m^3

How will the construction solid waste be disposed of (describe)?

The solid construction waste will be used as backfilling in areas where necessary and some will be disposed of at the nearest waste disposal site or quarry.

Where will the construction solid waste be disposed of (describe)?

To the closest appropriate registered municipal waste disposal site, which is Elliot or a licensed waste disposal contractor to be appointed by the site contractor. Depending on costs and availability.

Will the activity produce solid waste during its operational phase?	YES [redacted]
If yes, what estimated quantity will be produced per month?	2 -8m^3 at the Creamery
Creamery solid waste will be stored in Geobags and then taken off-site by a registered contractor	
The solid fraction of the manure generated by the piggery operations will be removed by a screw press separation system and then transported to the lined, enclosed composting facility to be composted to a saleable product.	140m^3 - Solid fraction manure from piggery
Domestic Waste will also be produced at the operations and this will be collected in specially placed skips and collected when required by a registered contractor.	

How will the solid waste be disposed of (describe)?

Solid waste will be collected by municipal services or by a registered solid waste contractor. This waste will include domestic waste such as paper, bottles etc, and waste generated by the proposed treatment facility at the Creamery site. The domestic waste as well as the waste sludge (stored in geobags) generated by the Creamery will be removed by registered contractors and certificates will be kept on site.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

All operational solid waste will always be disposed of at a registered landfill site.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	[redacted] NO

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?	■	NO

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

11(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	■	NO
If yes, what estimated quantity will be produced per month?	m^3	
Will the activity produce any effluent that will be treated and/or disposed of on site?	Yes	■

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?	■	NO

If yes, provide the particulars of the facility:

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

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

The wastewater treatment plan to use 3 different processes to treat the effluent produced by the pigs into biodegradable organic fertilizer and saleable compost.

The first process is anaerobic digestion of effluent produced by the pigs and collected in pits underneath slats within the piggery housing infrastructure. In the anaerobic process organic pollutant is converted into biological matter with the absence of oxygen.

The second process is separation where the dry matter and liquid matter is the separated from one another with the aid of a screw press system. The volume reduction predicted is in the order of 25%, with the solid fraction subjected to further heat treatment. The solid component will be treated within an enclosed composting site that will ensure that the compost of saleable quality.

The third proses uses slurry dams that are built to the highest safety factors in mind where biodegradable effluent is processed into liquid fertilizer with the aid of aeration or suturing mechanisms. The estimated total N application rate of the DWS Median guideline of 385 kg N/ha/y. This represents approximately 85% of the allowable application rate according to the DWS Guideline for Sludge Application Rates Special precaution will also be adhered to when irrigating the treated biodegradable effluent onto cultivated fields and pastures with the regards to buffer zones to ensure water resource protection. Areas surrounding wetlands will use a filter crop as protection against possible eutrophicating the wetland. Dr. James Meyer has been working closely with the Department of Water and Sanitation and the Department of Agriculture on the re-use of biodegradable effluent as an agricultural product.

All the practices will adhere to the following regulations: material of Section 21 (e) subsections 1.7 (c) and 1.10 (3). To ensure that the application of any wastewater, or products there from, to agricultural land, is within the nutrient loading restrictions per hectare per year as prescribed by the quality parameter guidelines.

Motivation for the agricultural use of the wastewater relates primarily to the DWS recognition thereof as a valuable resource when used as an organic fertiliser and soil conditioner, including the supply of macro and micronutrients and improved soil physical properties, i.e., better soil structure, increased water retention capacity and improved soil water transmission increase in inorganic matter and better microbial activities.

The Life Cycle thinking approach will be implemented to benefit the farming operations as well as the natural environment. It will cut costs of synthetic fertilizers and does not leach out of the soil medium as easily.

Refer to Section 2(d) within this report for the treatment process to be utilized at the Creamery operations.

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	■
If yes, is it controlled by any legislation of any sphere of government? The project will conform to the Norms and Standards as set out by the District Municipality.	■	NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

The Creamery operations will utilize a coal boiler to generate steam that is utilized in the milk processing phase to heat up the milk. The boiler and coal storage do not trigger an Air Emissions License but is required to conform to the Norms and Standards.

11(d) Generation of noise

Will the activity generate noise?	YES	
If yes, is it controlled by any legislation of any sphere of government?		NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

The piggery is planned on an already functioning farming operations and the surrounding areas also generate noise associated with farming activities, with a quarry located on an adjacent property to the main road (Khowa to Indwe).

The piggery will also produce additional noise in the form of the occasional squealing of pigs and farm vehicles on and around the site. Noise levels from this piggery will have no significant impact on the surrounding populace.

The Creamery will make use of a coal boiler that will generate additional noise with the additional loading of vehicles and moving of coal with TLB and conveyor belt.

The feed mill will use loading vehicles to transport feed as well as tractors and other farming vehicles that are already on the farm to transport crop that will be used as resource within the Feed Mill. The mixing equipment and pelleting equipment also generate additional noise; however, the Feed Mill and Creamery will be located close to the road and not near any formal or informal housing structures.

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

municipal	water board	Groundwater	river, stream, dam or lake	other	the activity will not use water
		X	X		

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be abstracted per month:	23 000m³ per month – Piggery operations + Creamery 9 000m³ per month
Does the activity require a water use permit from the Department of Water Affairs?	YES

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted. The Water-use License application is in process and the necessary proof will be submitted as part of this application – Please refer to **Appendix G.**

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

The activity and latest technology optimize the energy use. In addition, better lights can also be equipped that use less electricity. Solar energy installed on the piggery rooftops will be investigated as soon as the piggery is operational and financially self-sustaining.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Solar PV installed on the roofs of the piggery, Creamery and Feed Mill sites will ensure that the project can be sustainable in the long run, minimizing their risk of power failures and also reducing their carbon footprint.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A):	**0**

2. Paragraphs 1 - 6 below must be completed for each alternative.

3. Has a specialist been consulted to assist with the completion of this section?

YES	

If YES, please complete form XX for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

1. GRADIENT OF THE SITE – Please Refer to the Addendum A2 for Section B: 1-4

Indicate the general gradient of the site.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S2 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

2. LOCATION IN

Indicate the landform(s) that best describes the site : **Addendum A2 for Section B**

2.1 Ridgeline
2.2 Plateau
2.3 Side slope of hill/mountain
2.4 Closed valley
2.5 Open valley
2.6 Plain
2.7 Undulating plain / low hills

2.8 Dune
2.9 Seafront

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE - Addendum A2 for Section B

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:		**Alternative S2 (if any):**		**Alternative S3 (if any):**	
Shallow water table (less than 1.5m deep)	YES	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	Yes	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO	YES	NO	YES	NO
An area sensitive to erosion	YES	NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER - Addendum A2 for Section B

Indicate the types of groundcover present on the site:

4.1 Natural veld – good condition E

4.2 Natural veld – scattered aliens [E]
4.3 Natural veld with heavy alien infestation [E]
4.4 Veld dominated by alien species [E]
4.5 Gardens
4.6 Sport field
4.7 Cultivated land
4.8 Paved surface
4.9 Building or other structure
4.10 Bare soil

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld - good condition	Natural veld with scattered aliens	Natural veld with heavy alien infestation	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

BioBlue Environmental Sustainability appointed an independent Flora ecological specialist to undertake a Vegetation Assessment

The Fauna and flora and aquatic biodiversity reports, dated March 2022, were undertaken by the independent ecological specialist to fulfil the requirements for a Terrestrial Biodiversity Assessment as per the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of NEMA (GNR 320), as gazetted on 20 March 2020. These reports were undertaken as supporting information as part of a greater environmental application process and is compliant in terms of the requirements in the above regulations in terms of Terrestrial Biodiversity. In terms of the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of sections 24(5)(a) and (h) and 44 of NEMA, gazetted on 30 October 2020, relating to requirements relating specifically to the Terrestrial Plant and Animal (species) themes, this report also includes these requirements. Based on the largely cultivated states of the sites, and limited semi-natural vegetation, a terrestrial vegetation compliance statement was undertaken, supported by a site verification.

All four sites include cultivated land and according to the National Screening Tool, the three sites proposed for the animal stocking fall within areas classified as being of "Low" and "High" Terrestrial Biodiversity Sensitivity, with the high sensitivity being based on NFEPA sub catchments. These three sites are further largely classified as "Low" Plant Species Sensitivity, with a smaller slither classified as "Medium" Plant species Sensitivity.

The Fourth site, proposed for the Creamery and Feed Mill is classified as "Low" Terrestrial Biodiversity Sensitivity and "Medium" Plant species Sensitivity.

***Background to the site**:*

No rivers or wetland areas are indicated in proximity to Cloeta 1 and 2. According to national spatial layer, an intermittent stream flows through the north-western corner of the proposed animal stocking site, Cloeta 3, in a southerly direction. The proposed feed mill site is the lowest lying site and slopes gently northwards. Although not indicated as a river or wetland, the area north of this site seems to include a drainage line. The sites are situated in the Drakensberg Foothill Moist Grassland which is not a listed ecosystem. As per the Eastern Cape Biodiversity Conservation Plan, the whole project area is classified as "Other". These areas are not critical for conservation; however, they are functional landscapes and contains some natural areas and cultivated land.

Findings:
The Cloeta 1,2 and 3 sites comprised severely modified vegetation, and only the proposed feed mill site included natural occurring grassland vegetation. Modified landscapes are regarded as areas where the vegetation structure and composition have been compromised and are not representative of the reference state of in this instance, Drakensberg Foothill Moist Grassland. Most of the extent of the Cloeta sites are cultivated and remaining areas are modified from the reference state of grassland vegetation. Grassland vegetation is present around these sites.

The proposed feed mill site included cultivated land and natural grasslands The eastern portion of the proposed feed mill site was planted with maize, as well as the land west of this site. These areas are modified from the reference grassland state and not of conservation concern. Most of the proposed feed mill site comprised natural grassland vegetation, with moist elements, typical of the Drakensberg Foothill Moist Grassland.

Cloeta sites 1, 2 and 3 comprised modified vegetation of a low sensitivity to the proposed development. No sensitive plant species or vegetation communities will directly be impacted on. Provided that edge effect to adjacent grassland vegetation is prevented or limited, the specialist has no objection to the continuation of the proposed project on these three sites.

The proposed feed mill site is just over 5ha in size and includes modified vegetation, as well as good grassland of about 3ha. The grassland portion is small and cannot contribute to the conservation of good condition grassland. No plant species of conservation concern were recorded or are expected to be present. However, the site does provide habitat for pollinators, functions as a groundwater recharge zone and provides an ecological corridor through cultivated land. The proposed layout of the infrastructure on this site should strive to main a corridor through this site by conserving at least the eastern edge where rocky and marshy vegetation are present.

A list of thirteen (13) plant species of conservation concern that has a possibility of occurring on the site and surrounds were short-listed. None of these species were recorded at the time of the site verification and due to the historical impacts, none are expected to be present. Suitable habitat for an Endangered species is present at the proposed feed mill site; however, this species was not recorded here. There is a medium possibility that this species occurs in grassland around the proposed four sites.

Table 2: Vegetation Summary

Province	Eastern Cape
Quarter Degree Grid Square	3127BD
Protected areas	None close to the site
Topography and Hydrology	According to national spatial layer, an intermittent stream flows through the north-western corner of the proposed animal stocking site, Cloeta 3, in a southerly direction. Cloeta 3 slopes gently westwards towards this drainage line. The proposed feed mill site is the lowest lying site at about 1540m and slopes gently northwards. Although not indicated as a river or wetland, the area north of this site seems to include a drainage line.
Eastern Cape Biodiversity Conservation Plan (ECBCP):	As per the ECBCP, the whole project area is classified as "Other". These areas are not critical for conservation; however, they are functional landscapes and contains some natural areas not included in CBAs or ESAs as well as areas such as cultivated land.

Vegetation (Mucina and Rutherford, 2006; Skowno et al, 2019): (Figure 4)	The sites are situated in the Drakensberg Foothill Moist Grassland. Although poorly protected, this vegetation type is classified as Least Concern.
Impact on ecosystem threat status	According to the 2011 Listed Ecosystems, the project area is not within a listed ecosystem (Government Gazette 34809, Government Notice 1002, and 9 December 2011). Although the National List of Threatened Terrestrial Ecosystems published in terms of the Biodiversity Act in 2011 remains in legal force, the data contained in the recent National Biodiversity Assessment (NBA) 2018 represents an update of the assessment of threat status for terrestrial ecosystems. The updated threatened ecosystems as per the recent NBA (2018) also lists the sites within remnant patches of a Least Concern ecosystem. These areas were the focus of the site verification. The proposed development will thus not impact on threatened ecosystems.
Sensitive Areas and No go areas	Grassland around the site, as well as the watercourse to the south-west of Cloeta 3.
Plant species of conservation concern	No plant species of conservation concern were recorded, and none are expected to be present.
Main impacts:	The main impacts expected are as follows: • Destruction fo grassland vegetation at the feed mill site • Pollution of the soil and water due to spillages / leakages • Potential increase in invasive vegetation • Degradation of surrounding grasslands due to edge effects
Cumulative and residual impacts:	• Pollution of the watercourse in proximity to Cloeta 2 and3. • Fragmentation of ecological corridors

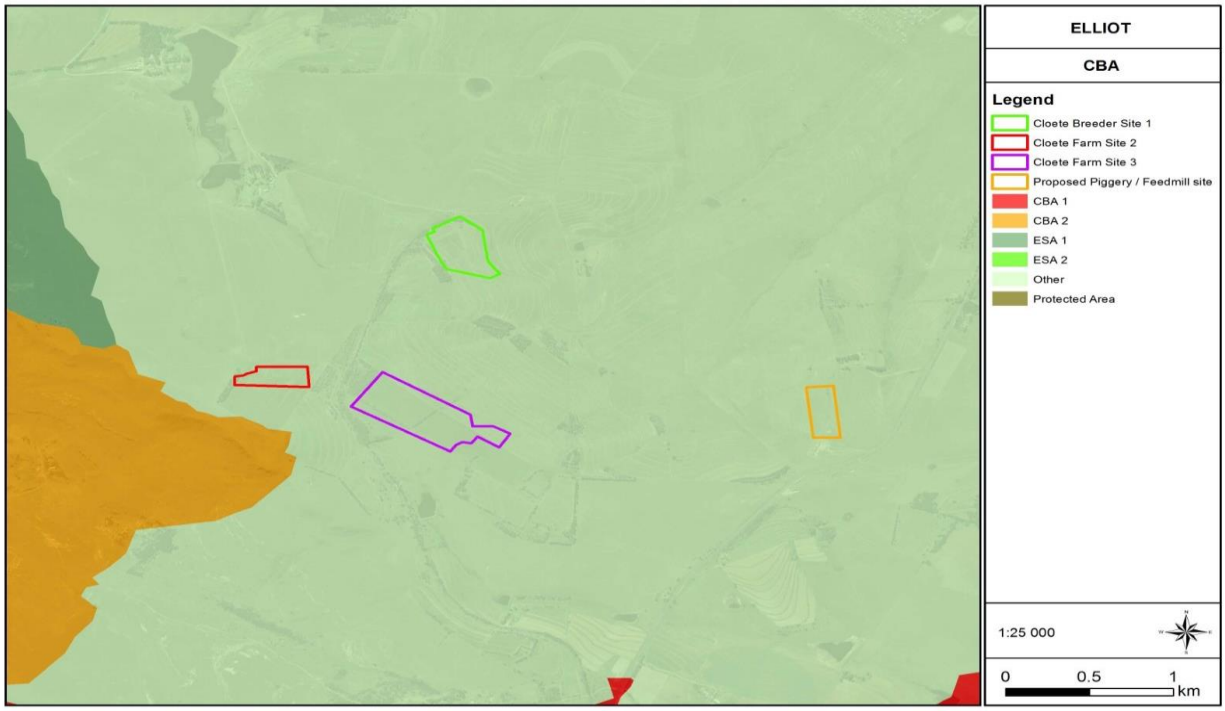


Figure 7: The sites in relation to the Eastern Cape Biodiversity Conservation Plan

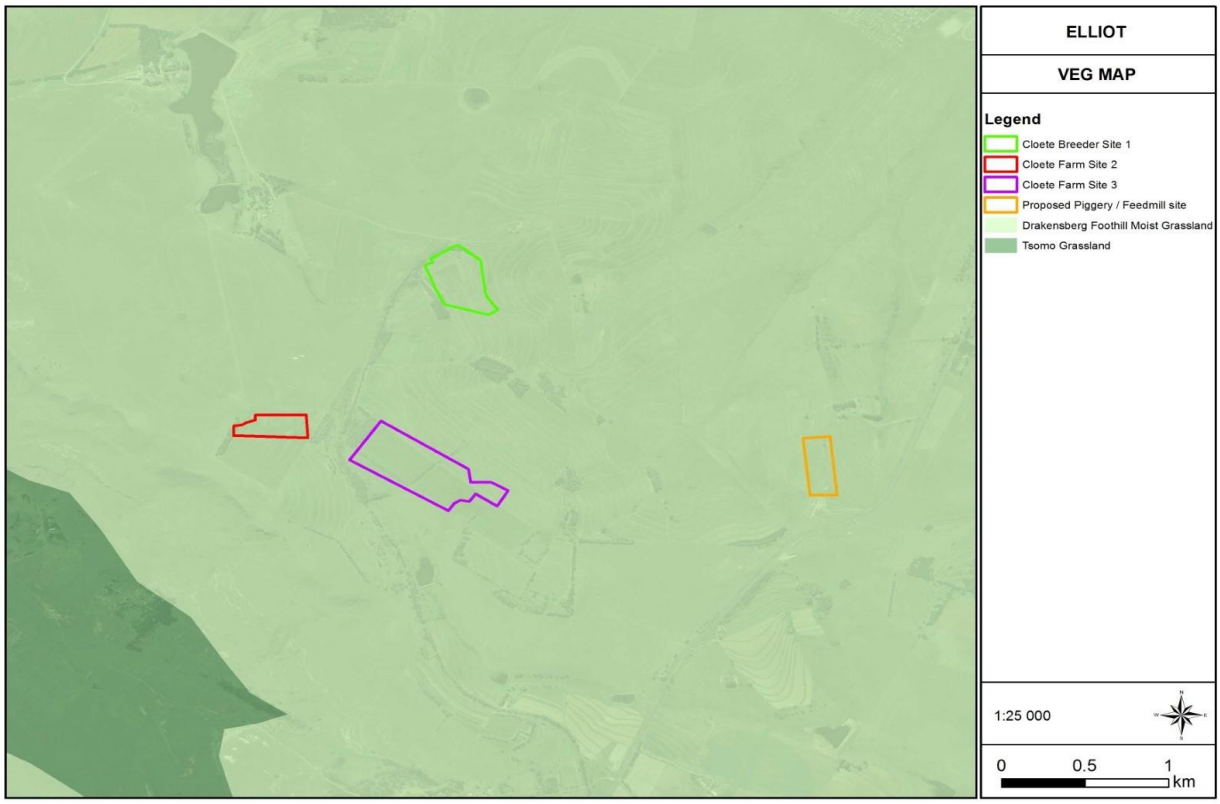


Figure 8: The sites fall within the Drakensberg Foothill Moist Grassland

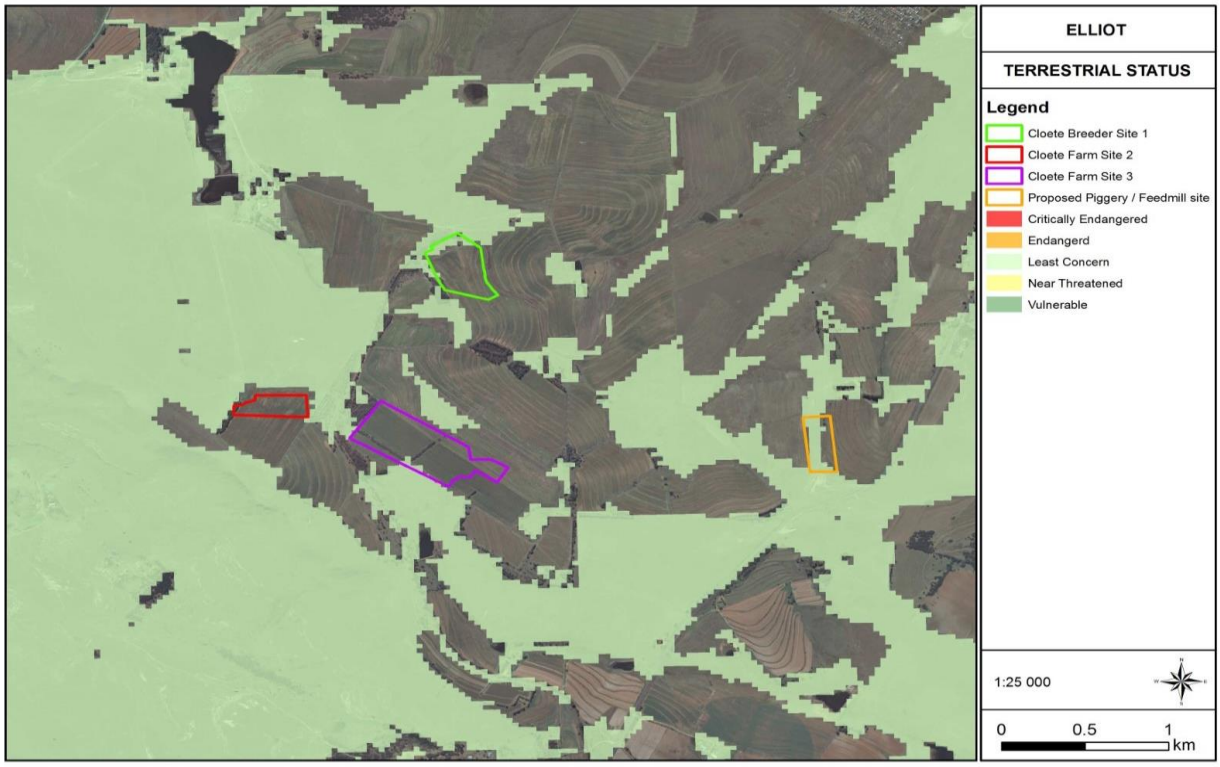


Figure 9: The sites include remnant patches of the Drakensberg Foothill Moist Grassland Ecosystem, which is classified as least concern.

Compliance Statement:

Cloeta sites 1, 2 and 3 comprised modified vegetation of a low sensitivity to the proposed development. No sensitive plant species or vegetation communities will directly be impacted on. Provided that edge effect to adjacent grassland vegetation is prevented or limited, the specialist has no objection to the continuation of the proposed project on these three sites.

The proposed feed mill site is just over 5ha in size and includes modified vegetation, as well as good grassland of about 3ha. The grassland portion is small and cannot contribute to the conservation of good condition grassland. No plant species of conservation concern were recorded or are expected to be present. However, the site does provide habitat for pollinators, functions as a groundwater recharge zone and provides an ecological corridor through cultivated land. The proposed layout of the infrastructure on this site should strive to main a corridor through this site by conserving at least the eastern edge where rocky and marshy vegetation are present.

Terrestrial Fauna Assessment

The project area overlaps small areas ranked as very high sensitivity in the western extent associated with the Beeza River sub-catchment area; the remainder of the area is ranked as low sensitivity for terrestrial biodiversity. Two animal stock areas overlapping the Beeza River catchment are under crop fields (no natural areas) and provide limited habitat in terms of terrestrial fauna biodiversity and can be considered as having low terrestrial biodiversity ranks as far as it relates to terrestrial fauna. The terrestrial biodiversity is therefore generally assessed as a compliance statement for terrestrial fauna. The development sites are largely ranked as medium sensitivity for animal species, but do intersect small areas ranked as high sensitivity (mostly associated with the riverine areas in and around site). A high level animal species assessment has been incorporated into this report for the three SCCs in line with the animal species protocols as far as these are relevant.

Site Characterisation

The bulk of the area is under crop farming, with uncultivated areas composed of disturbed grasslands and Eucalyptus-dominated tree stands. Grasslands occur in the southern extent of animal stock area 3 and dominate the proposed Cheese Farm and Feed-mill site, which is part of a minor terrestrial ecological corridor impacted to the south by the quarry and farm road and the north by maize crops

Animal Species (Fauna Diversity report)

The following is relevant in terms of fauna species:

• Of the listed SCCs none are likely to occur in the area for extensive periods and none are expected to utilise the development sites extensively, limited to possible foraging excursions in the general project area (no long-term nesting, roosting or breeding periods expected on the development sites) and more likely to forage in the natural grasslands.

iii Elliot Agricultural Development: Terrestrial Fauna Impact Report March 2022

• Two TOP birds have been recorded for the pentad, but neither is considered likely to nest in the project area and are considered only as possible foragers in the project area. Three other TOP birds cannot be excluded from the project area based on distribution, core range and potential habitat. As very mobile species, none of the birds are expected to suffer impacts from the development, but TOP species must be pro-actively monitored and managed.

• The development sites have no surface water resources and significant populations of congregatory water birds / aquatic species are unlikely in these areas, but species may utilise the neighbouring farm dams, although these are limited in extent.

• The site is not within a significant area of faunal endemism.

Terrestrial Biodiversity

In terms of biodiversity features of relevance to terrestrial fauna, site findings are largely in agreement with the desktop ecological assessment which identified the Beeza River catchment and Rank 2 wetlands (habitat provision for cranes) associated with the Slang Tributary as sensitive areas. Only animal stock areas 2 and 3 overlap the Beeza River catchment. The change in land use from crop agriculture to animal agriculture should not cause additional impact to the catchment and may marginally improve these systems with less use of herbicides, insecticides and reduced irrigation. Indirect impacts to downstream environments by siltation and contaminated runoff must be mitigated to prevent deterioration to these features. Site Ecological Importance and Impact Statements Overall SEI is presented below. iv Elliot Agricultural Development: Terrestrial Fauna Impact Report March 2022 The more significant impacts identified and assessed in this report include: • Loss of grassland habitat (Medium SEI) is considered moderately significant and must be minimised. • Contamination to land and downstream environments through runoff is considered moderately significant and must be prevented, especially as the downstream features are considered sensitive environmental features.

SITE ECOLOGICAL IMPORTANCE AND IMPACT STATEMENTS

Figure 6: Overall SEI is presented below.

The more significant impacts identified and assessed in this report include:

• Loss of grassland habitat (Medium SEI) is considered moderately significant and must be minimised.

• Contamination to land and downstream environments through runoff is considered moderately significant and must be prevented, especially as the downstream features are considered sensitive environmental features.

Conclusion and Recommendations:

In terms of the findings, if the following is implemented then there is no reason for not authorizing the activity in terms of terrestrial fauna:

- Exclude the grassland area south of the animal stock site 3 from the development site.
- Further minimize activities in grasslands that will maintain tracts of grassland corridors for smaller fauna (construct to maintain a western or eastern corridor of grassland, or scatter buildings in between connected patches of grassland with formalise pedestrian paths to prevent deterioration of interspersed grassy areas).
- Maintain the rocky and marshy area as part of the natural landscaping

Table 3: Ecologically significant features relevant to the site

Ecological area	Description of feature relevant to the site
International Conservation	No RAMSAR wetlands or World Heritage Sites occur within 50km of the project area.
Important Bird Areas (IBAs)	No IBAs occur within 50km of the project area.
Protected Areas (PA)	No PAs occur within 10km of the project area. No National Protected Area Expansion Strategy (NPAES) occurso the development sites, but NPAES targeting the conservation of Amathole Tarkastad occur approximately 8km south and 12km north-west of the project area.
National Freshwater Ecology Priority Areas (NFEPAs) (Plan 2)	The moderately modified (PES C; RIVCON C) Beeza River originates in the project area and drains the south-western sites. The small Beeza River catchment is designated as a Fish Support Area. The remainder of the project area is within an Upstream NFEPA Management Area. A tributary to the moderately modified (PES C; RIVCON C) Slang River, approximately 3.5km east of the project area, receives runoff from the northern sites. No Rank 1 or 2 NFEPA wetlands occur on site, but Rank 2 wetlands are associated with the Slang Tributary, triggered as Crane habitat.
SWSAs	No Strategic Water Source Areas occur on site but various catchments around the project area are designated as Eastern Cape Drakensberg surface water resource areas. The project area is downstream of these catchments.
Biome and Ecosystem	The project area falls within the Grassland Biome, specifically the Drakensberg Foothill Moist Grassland vegetation unit, which is not a listed TOP ecosystem (NEM:BA, GN1002, 2011).
Eastern Cape Conservation Plan (Plan 3)	No terrestrial CBAs or ESAs intersect the project area. The project area is within an aquatic ESA1.
Quarter Degree Grid Square (QDGS)	The project area falls within QDGS 3127BD. All desktop data obtained from the citizen science sites have been sourced for this QDGS.

Table 4: Site Habitat Characterization

Habitat Unit	Description & Discussion
 Grassland – Cheese Farm & Feed-mill	The grassland showed some limited disturbances (farm tracks, edge effects from maize fields, alien invasive species, and limited excavations and surface disturbance). Some of the excavated areas and natural depressions created temporary wetland areas / pools due to the extensive rain over the prior week and were extensively utilised by frogs. Animal signs were limited to old carnivore feeding signs north of the site, probably a medium sized scavenger.
 Rocky area – Cheese Farm & Feed-mill	A small rocky area was noted in the grassland area (scattered individual rocks were also present at this site but of limited value as rocky habitat for significant fauna populations). The rocky area trapped and impeded drainage and was associated with a marshy pool which was well-utilised by frogs, although none were visually confirmed.
 Disturbed grassland – Stock area 1 & 3	Disturbed grasslands included areas adjacent to maize fields which are disturbed by the activities associated with the cropping cycles (ploughing, seeding, irrigation and harvesting) and dominated by pioneer shrubs. Areas were densely overgrown and few fauna signs were noted, limited to tracks observed along the roads and paths (mongoose, birds and small antelope).
 Maize fields	Much of the area was under agriculture (maize crops). The bird life was limited due to the rainy weather experienced on the first survey day, but seed-eaters and insectivores tolerant of the man-modified agricultural setting are expected to dominate in the area.
 AIS Stands	The stands of alien invasive trees are considered as modified habitats, but do provide some fauna habitat and offer the only significant arboreal habitat on site.

Mammals:

No mammals are visually confirmed for site and only limited fauna signs were noted, possibly due to extensive rains in the area over the preceding week. Large herbivore leg bones were strewn across the rocky bedrock, north of the Creamery and Feed Mill Site, suggesting scavenging species dragging the bones to more suitable feeding areas. Other signs were limited to the tracks of a mongoose (Likely the Yellow Mongoose) and an antelope, most likely the Common Duiker. Mole-rat mounds were observed in the grassland and disturbed grasslands.

Birds:

The bird life activity was limited due to the rainy weather, however, seed-eaters and insectivores are expected to dominate the area and the mosaic of crops, AIS trees and grasslands. Four bird SCC's are listed for the project area in the Environmental Screening Report:

- African Marsh Harrier
- Black Harrier
- Secretarybird

Herpetofauna: One dead snake, the Spotted Grass Snake, was recorded in the disturbed grassland. The Raucous toad was confirmed in the crop fields near the rocky marshes in the grassland area.

Please refer to the attached Terrestrial Fauna and Flora Reports – Appendix D

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area

The proposed piggery operational sites are all located on severely modified vegetation, comprising mostly cultivated fields on the various portions of the Farm Cloeta and Groente Fontein. No rivers or wetland areas are indicated in proximity of Breeder Site 1 and Weaner Site 2, while an intermittent stream flows on the north-western corner of the proposed Finisher Site 3. The proposed Creamery and Feed Mill site included natural occurring grassland vegetation that forms part of the Drakensberg Foothill Moist Grassland. These areas are modified from the reference grassland state and not of conservation concern. Most of the proposed feed mill site comprised natural grassland vegetation, with moist elements, typical of the Drakensberg Foothill Moist Grassland.

Grassland vegetation and various wetland areas are located in the region of the sites with cultivated fields spread across the various farm portions.
Cloeta sites 1, 2 and 3 comprised modified vegetation of a low sensitivity to the proposed development. No sensitive plant species or vegetation communities will directly be impacted on. Provided that edge effect to adjacent grassland vegetation is prevented or limited, the specialist has no objection to the continuation of the proposed project on these three sites.

The proposed feed mill site is just over 5ha in size and includes modified vegetation, as well as good grassland of about 3ha. The grassland portion is small and cannot contribute to the conservation of good condition grassland. No plant species of conservation concern were recorded or are expected to be present. However, the site does provide habitat for pollinators, functions as a groundwater recharge zone and provides an ecological corridor through cultivated land. The proposed layout of the infrastructure on this site should strive to main a corridor through this site by conserving at least the eastern edge where rocky and marshy vegetation are present.

The proposed sites and pipeline routes have been chosen to have minimal negative effects on the adjacent natural areas. The site areas will not encroach on any wetland buffer zones, while the only pipeline crossing will be for the proposed process water pipeline from the piggery sites. Finisher Site 3 has been moved from its original location as it was within the wetland buffer zone. Filter strips will be planted around cultivated fields to assist with minimizing impacts of agricultural run-off. The project will envisage to improve the surrounding natural areas by removing alien and invasive species and protecting these grassland and delineated wetland areas. The sites will be fenced and enclosed to ensure that no further encroachment can occur during the operational phase of the various project aspects.

Also refer to the specialist study attached in Appendix D.

5.23 Railway line **N**

An old railway does occur on the property running between the 3 piggery sites but will not be influenced or impacted by this proposed piggery operations and the Railway line will be left intact

5.33 Agriculture

Most of the sites currently fall on land that is used for crop cultivation by the applicant. The whole proposed activity is also agriculture in nature, just more intensified and more industrialized. The biodegradable effluent generated by the piggery operations will be utilized on the remaining cultivated fields and pastures as organic fertilizer to limit the use of synthetic fertilizers that are more prone to leaching out of the soil layer. The whey produced from the Creamery operations will be utilized at the piggery operations as a feed supplement, thus the whole Life Cycle thinking approach minimizes waste and improves the sustainability of all project aspects.

5.34 River, stream or wetland

According to national spatial layer, an intermittent stream flows through the north-western corner of the proposed animal stocking site, Finisher Site 3, in a southerly direction. Finisher Site 3 slopes gently westwards towards this drainage line. The proposed feed mill site is the lowest lying site at about 1540m and slopes gently northwards. Although not indicated as a river or wetland, the area north of this site seems to include a drainage line.

There are also several wetlands in proximity of the different sites. A wetland assessment was conducted to ensure that none of the proposed sites would be located within the buffer zones of any of the wetlands. The only infrastructure that will impact directly upon a wetland is the proposed new entrance road and the proposed process water pipeline to the piggery operations.

BioBlue Environmental Sustainability appointed a Wetland and aquatic specialist to undertake a wetland and aquatic evaluation

The wetland report, dated April 2022 found that:

Based on current outputs of the NFEPA database, NFEPA wetlands were identified within the 500m regulated area from the proposed developments. Some of the wetlands deliver hydrological inputs to the Slang River. The wetlands on the study sites fall within Mzimvubu to Kieskamma Water Management Area (WMA). Eight wetlands were identified during the field surveys within 500m from these proposed facilities. From the eight wetlands assessed six were classified as belonging to the unchanneled valley bottom HGM type and two being classified as depressions.

Many of the wetlands on the study sites were observed to harbour crane species such as Grey crowned cranes (*Balearica regulorum*) and Blue cranes (*Anthropoides paradiseus*). According to the Red Data Book of Birds of South Africa, Lesotho and Swaziland the Grey crowned crane is listed as Endangered. The Blue crane (*Grus paradisea*) is listed as Vulnerable by the IUCN. Wetland habitat is crucial for cranes as they use wetlands for breeding and foraging sites. The major impacts on the wetlands assessed range from the presence of soil dams within the catchments of the wetland or in the wetland itself, presence of alien invasive species and maize fields which have encroached into the wetland zone.

It is clear from the PES scores of all the wetlands that none of them are in a pristine natural state, although all of the wetland systems still possess a high degree of ecological integrity. The PES scores of two out of the eight wetlands were class B(largely natural) and the other six wetlands were a class C (moderately modified). For the wetlands with a PES score of B as light change in ecosystem processes is discernible and a small loss of natural habitats and biota may have occurred .For the wetlands with a PES score of C a moderate change in ecosystem processes and loss of natural habitats has taken place but the natural habitat remains predominantly intact.

The proposed development sites are located within existing maize fields with no wetland habitat that will be disturbed or destroyed. As per the current proposed layout, piggery number 3's left bottom corner

encroaches slightly into the delineated wetland. It is proposed that piggery number 3 should be moved to the right, outside of the delineated

It is imperative that the mitigation measures and recommendations contained in this report should be adhered to and strictly implemented during the different phases of the project. If the mitigation measures and recommendations as prescribed in this report are followed the negative impacts of the proposed developments on the assessed wetlands would be very small to nothing. By implementing the alien invasive eradication and monitoring programme the wetland health and functioning will be improved. The prescribed buffer zone should be implemented to ensure that the negative edge effects associated with possible future development and agricultural activities do not negatively influence the ecological integrity and continued functioning of the wetlands.

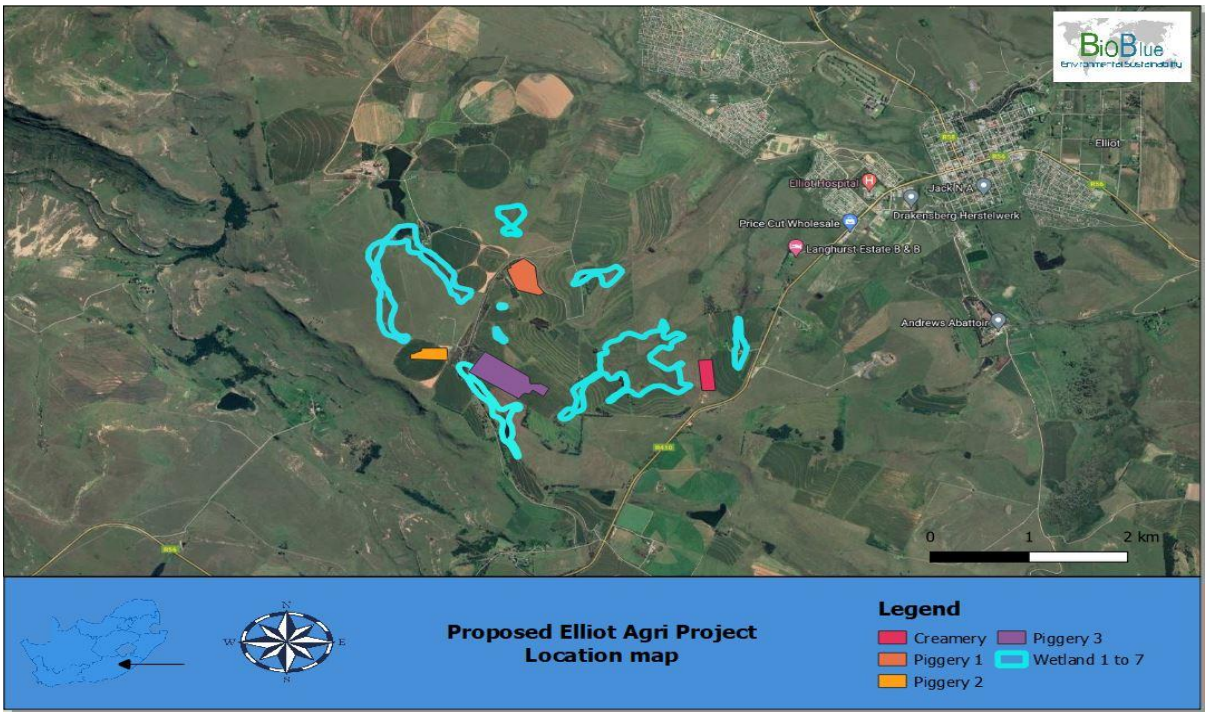


Figure 7: All wetlands within the 500m regulated area

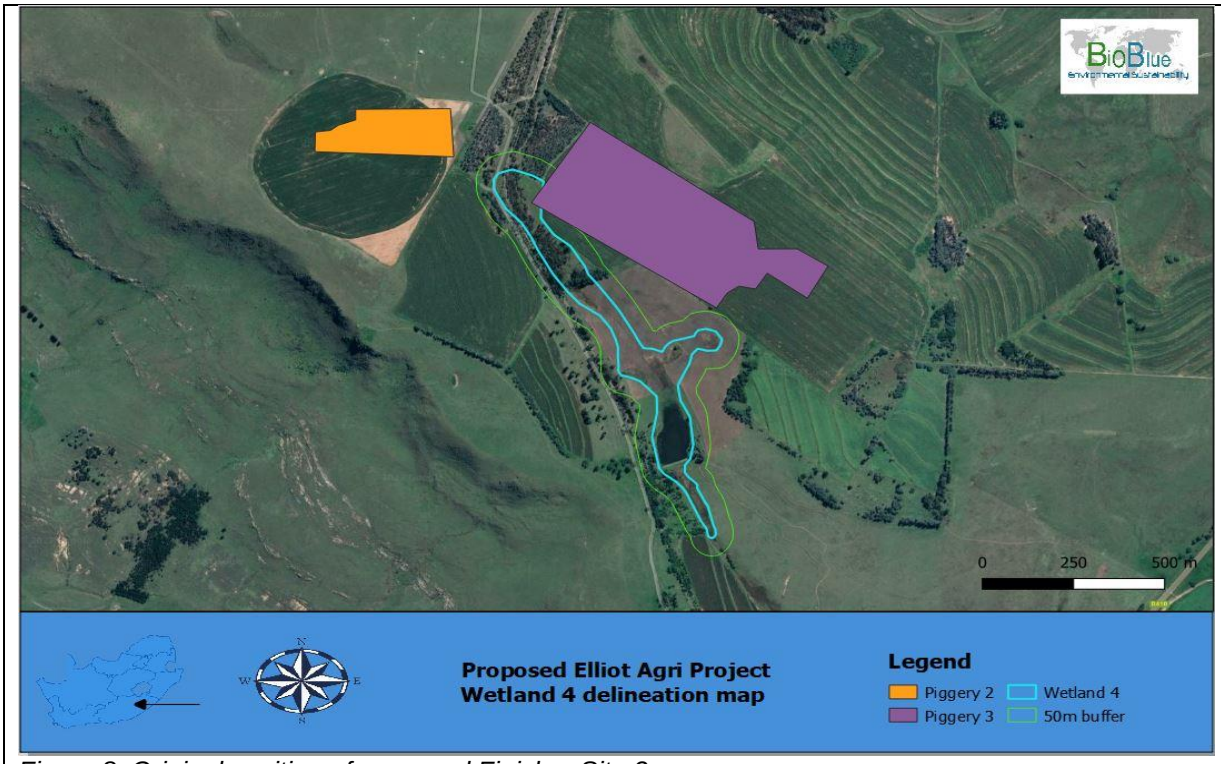


Figure 8: Original position of proposed Finisher Site 3

This wetland is located within 500m of piggery number 3. The wetland on the study site delivers hydrological inputs to the Slang River downstream. As per the current proposed layout, piggery number 3's left bottom corner encroaches into the delineated wetland. It is proposed that piggery number 3 should be moved to the right outside of the delineated wetland boundary still within the maize field so that no natural grassland and wetland habitat is impacted. Wetland 4 lies to the South and downslope of piggery number 3. Wetland 4 is classified as belonging to the unchanneled valley bottom HGM type. The wetland's hydrology is negatively impacted by a big soil dam, although there is seepage from the soil dam which still allows water to move further down the system. Dense stands of Eucalyptus trees occur in the upper reaches of the wetland as well as close to the dam. These trees also diminish the amount of water available to this wetland system and poses a threat of further invasion of the system, not to mention negatively impacting habitat diversity in the wetland.

Figure 9: Big soil dam within Wetland 4 and Dense stands of Eucalyptus near the proposed piggery site

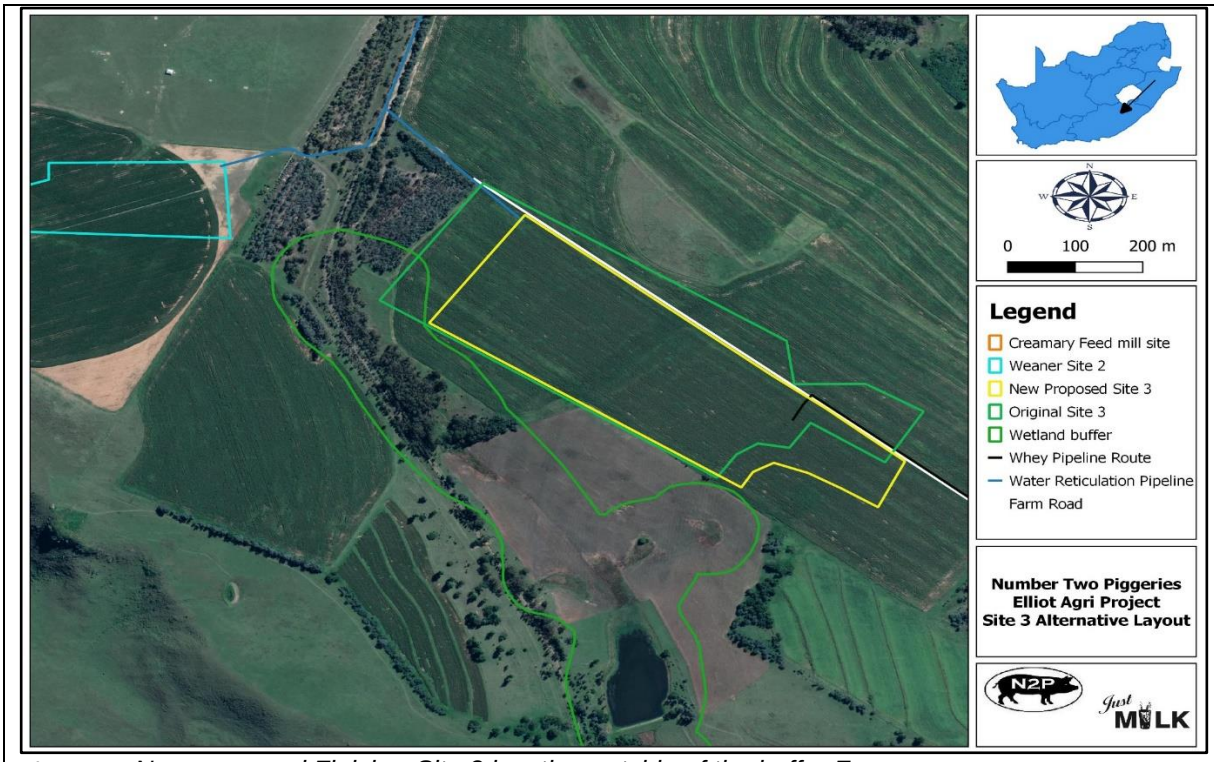


Figure 10: New proposed Finisher Site 3 location outside of the buffer Zone

There are numerous impacts on the wetlands that need to be addressed such as head cut erosion in wetland 5 that needs to be addressed to ensure that it does not spread and further impact on the integrity of the wetland. The dense stands of Eucalyptus trees need to be systematically removed as this would ensure more water flow within the wetland area and curb the possibility of erosion. Some of the wetlands have been impact by historical maize farming and one option is to plant filter strips on the boundaries of the cultivated fields and within the areas where the maize does not do well as a result of the presence of the wetland soils. Any signs of siltation such as from the roads should be investigated as part of the long-term rehabilitation plan.

Please refer to the Wetland Assessment in Appendix D for photographs and descriptions of the wetlands.

Stormwater Management Plan

MEB Consulting Engineers have been appointed to develop and submit a Stormwater Management Plan for the different aspects of the proposed project development.

The report serves the purpose of giving insight into what is proposed in terms of stormwater management for the development.

The report includes:

- Site topography
- Rainfall data
- Peak runoff and hydrology
- Stormwater management systems
- Attenuation

Site Topography

1. Breeder Site
The site is naturally sloping from west to east with a fairly steep gradient of +/- 5% towards the low point on to the south-east of the site. The highest point of the site is +/-1560m above mean sea level. The catchment where the development is proposed drains towards the Slang River towards the north of the site. The Slang River is a tributary of the Mbhashe River.

2. Weaner Site
The site is naturally sloping from east to west with a fairly steep gradient of +/- 3.5% towards the low point on to the west of the site.

3. Finisher Site
The site is naturally sloping from east to west with an essay gradient of +/-2% towards the low point on to the south-east of the site. The catchment where the development is proposed drains towards the Beeza River towards the south of the site.

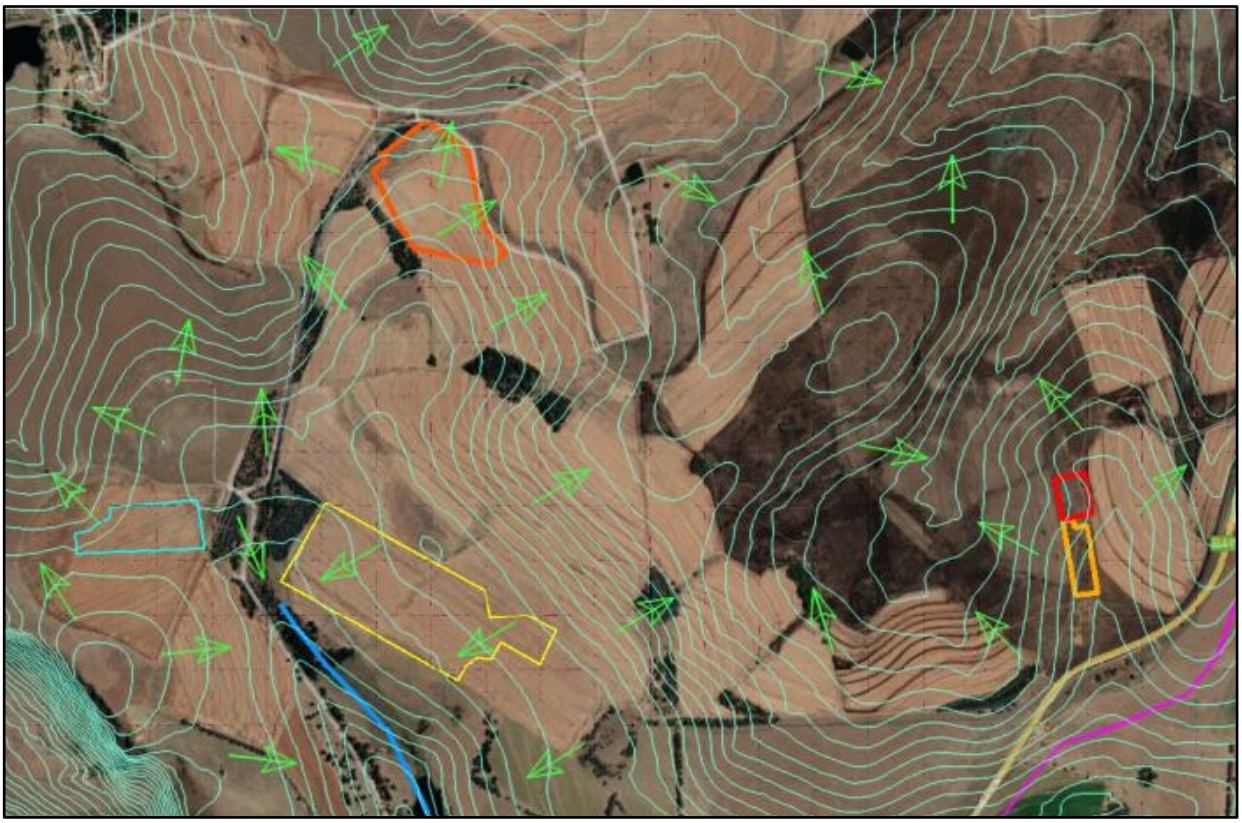


Figure 11: indicating the topography of the site and the nearest water courses.

Floodline:

A desktop study was done, and it could be noted that our best knowledge is not affected by the 1:100-year floodline. The closest watercourse to any of these sites are the Beeza River with its starting point to the south of the Finisher site.

Attenuation Requirements
Due to the increase in stormwater runoff from the site as a result of turning vegetated permeable soil into hard surfaced or roofed areas attenuation of stormwater needs to take place as to reduce the post development runoff to be similar to the pre-development runoff values. Attenuation of up to 1 in 50-year event is taken into account, starting from the 1 in 5-year rainfall event.

Attenuation on these sites can be handled by means of attenuation in the clean water channels between the buildings and also in the PDC volume.

Rainfall Data:
The mean annual rainfall was taken as 711mm, this data was obtained from the Elliot weather station (station 150620) with the data set displayed below:

Return Period		2	5	10	20	50	100	200
Duration (days)	1 day	53	70	82	95	113	128	145
	2 days	65	84	99	113	134	151	169
	3 days	74	98	115	133	159	180	202
	7 days	96	126	147	169	199	224	249

150620 ELLIOT (SAR)

Mean annual precipitation (MAP) 711 mm

Peak Runoff and Hydrology:

Breeder Site
The site 22 400m³ in size where the breeder operations take place and where hard surfaces, and roofs are to be constructed. The construction of hard surfaces increases the runoff coefficient of the site due to a reduced ability for water to infiltrate the soil.

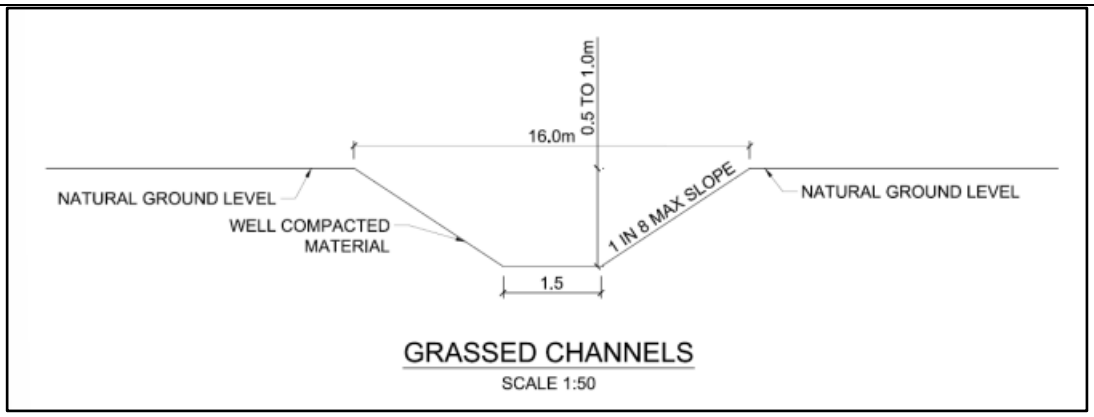
Runoff Volume and Attenuation Volume			
Event	1:5	1:20	1:50
Pre development (m3/s)	0.191	0.335	0.460
Post development (m3/s)	0.624	0.976	1.268
Storm duration (min)	15	15	15
Pre development runoff volume (m3)	171	301	414
Post Development runoff volume (m3)	561	878	1141

Attenuation required = 1:50 year post development – 1:50 pre-development
= 1 141m³ - 414m³
= 727m³ total attenuation required

The proposed wastewater area for this site is 7 000m² and rainwater during the 1:50 year storm falling directly in this pond is:

Volume = 47.8mm point rainfall x 7 000m² = 334.6m³

Thus, the volume to attenuated in the grass lined channels between the buildings is:
Volume = Total attenuation volume – PCD attenuation volume
= 727m³ - 334m³
= 393m³



Attenuation in grassed channels is 0.38m³/m of channel if the outlet pipes are placed at 150mm above the invert level of the channels.

Length of channels = 1 197m length

Total channel attenuation = 0.38m³/m * 1 197m = 454m³

Additional attenuation provided = 454 – 393 = 61m³ more than required

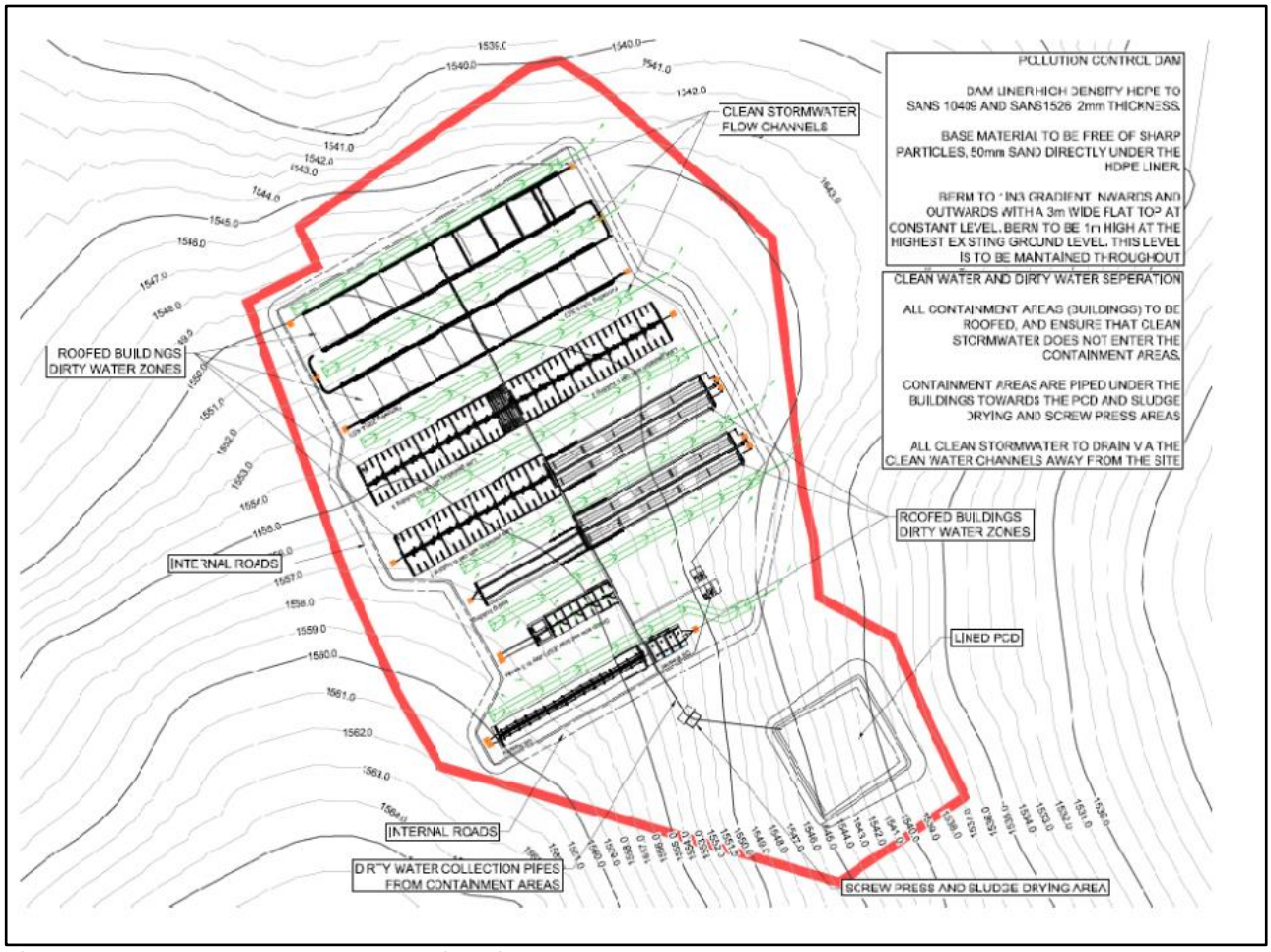
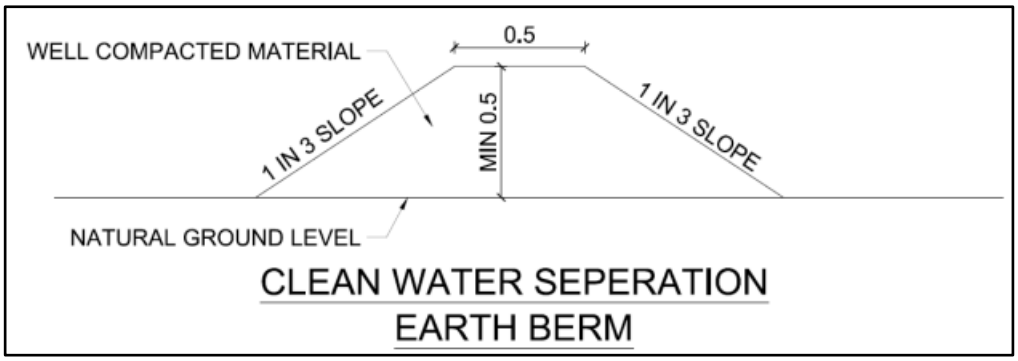


Figure 12: Stormwater Layout – Breeder Site

The detailed description of the Weaner and Finisher site is described within the Stormwater Management Plan attached within Appendix D.

Clean Water and Dirty Water Separation:
Stormwater management in the development consists of clean water and dirty water zones. The dirty water zones are the zones within the under-roof infrastructure on all three sites. The outside areas are described as clean water zones. The following stormwater management systems are in place to create a separation between the clean water and dirty water zones:

- Dirty water zones are contained under roof. This ensures no rainwater falling directly into dirty water zone and dirty water areas can be dealt with separately.
- All water used in the dirty water areas drains via underfloor drains towards the screw press and sludge during area and PCD.
- Roads and berms are constructed around the operational areas, berms are required to redirect water that might flow onto the operational areas.
- Pollution control dam/slurry dams are lined to prevent any infiltration into the ground water and these dams have berms to prevent discharge into the open farmlands.



5.41 Archaeological site

It seems uncertain that there are any archaeological findings within 500m of the proposed site.

BioBlue Environmental Sustainability appointed an independent Archaeological and historical specialist to conduct and independent cultural historical feature study (Report. APAC022/43a).

The study concluded that; No cultural heritage (archaeological and/or historical) sites, features or material were
identified in the study & proposed development area footprints during the field assessment.
From a Cultural Heritage perspective, the proposed Elliot Agricultural Development should be allowed to continue taking into consideration the recommendations put forward at the end of the report.

Field Survey:
The field assessment section of the study is conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of heritage significance in the area of the proposed development.

No Stone Age sites, or material was identified in the study & development area footprints during the field assessment. No Iron Age sites, features or material were identified in the area during the recent field assessment.

For the recent historical time-period it is important to note that the town of Elliot was first established in 1885 as the Slang River Settlement. In April 1894 the settlement was renamed Elliot, after Sir Henry George Elliot (1826-1912), Chief Magistrate of the Transkeian territories from 1891-1902. In 1911 the town became a municipality and in 2016 Elliot was renamed Khowa.

Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

Desktop Paleontological Assessment:

Dr. Alan Smith conducted the Paleontological assessment for the proposed Elliot Agri Development near Khowa in the Eastern Cape. The proposed development is underlain by the Molteno Formation of the Karoo Supergroup. This Lithology is known for its paleo material. In mitigation this area is already disturbed as it is historical agricultural land. Further the development footprint is likely to be very shallow. In some areas the Molteno is overlain by alluvium, and this is very unlikely to be fossiliferous and for this reason a field-visit is not recommended at this stage.

Methodology:
Geological maps, a literature review and personal experience (see Appendix 1) were used in this research.

Geology:
The Cloete Farm sites overly the rocks of Molteno Formation. Karoo Dolerite sills and dykes and alluvium may also be encountered (figure below). The fact that agriculture has been practiced historically indicates that a soil covering is present and therefore outcrop will not be encountered.

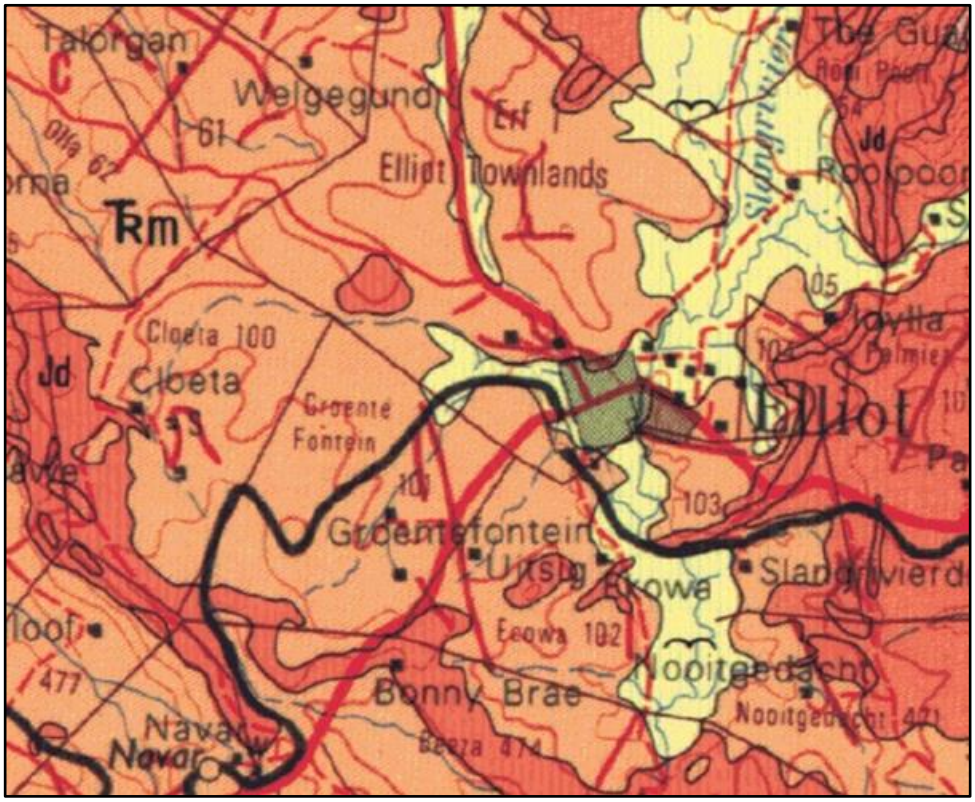


Figure 13: Extract from the Queenstown (3126) 1:250 000 Geological Map. This shows the lithologies encountered. Orange is Molteno Formation, red is Karoo Dolerite and yellow is alluvium.

The Molteno Formation (up to 600m thick) is mixture of sandstones and shales. The sandstone is described as a medium-to-coarse-grained glittering sandstone. The Molteno Formation is 216 – 220 million years (Ma) old and occurs above an angular unconformity. This unconformity is the result of the Cape Mountain orogeny (Cataneneau et al., 2005). This built the Cape Fold Mountains, the eroded remnant of which we see today. This mountain range may have been up to 10 000m high.

Palaeontology:

Molteno Formation

The Molteno Formation sandstones are generally composed of coarse-grained sandstones and less likely to contain fossils. However, the finer-grained rocks may be fossiliferous (Bordy et al., 2005) and may contain plant and insect fossils (Anderson, 1974).

The Molteno Formation contains fossils of 204 plant species and 333 insect species. It is one of the richest Upper Triassic-age plant and insect assemblages. The insect fauna contains well-preserved fossil insects which are very rare (Anderson and Anderson, 1997). The dominant fossil flora is associated with seven recognized habitat types include *Dicroidium*, an extinct arboreal genus of seed fern that grew in either riparian forests or temperate woodlands. Nineteen species of *Dicroidium* alone have been recovered from the Molteno Formation (Anderson & Anderson, 1997).

Karoo dolerite

This is an intrusive igneous rock and cannot be fossiliferous.

Alluvium

This could contain loose fossils however historic agriculture is likely to have destroyed these. There is no record from this area.

SUMMARY AND CONCLUSIONS

This site is dominated by the Molteno Formation, which is known for plant fossils (Bordy, et al, 2015). Alluvium and dolerite may also be found. The former is very unlikely to be fossiliferous and the latter cannot be fossiliferous by definition.

The proposed development will have a very shallow footprint and will take place on historically disturbed agricultural land. For this reason, a field-visit is not recommended.

A “Chance Find Protocol” has been appended to this report. Should this be triggered than a field visit by a competent paleontologist may be required. (see Appendix 2). The “Chance Find Protocol” should be written into the EMPr.

If any of the boxes marked with an “N “are ticked, how will this impact / be impacted upon by the proposed activity.

It will not be impacted

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:

If YES, specify:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.

If YES, specify and explain:

If YES, specify:

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including		NO
Archaeological or palaeontological sites, on or close (within 20m) to the site?	No	
If YES, explain:		
If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.		
Briefly explain the findings of the specialist:	The specialist did not find any archaeological or historical artifacts or items in proximity of the proposed project. If any graves or artifacts are found during the construction phase, construction needs to be stopped in that area and the specialist needs to be contacted.	
Will any building or structure older than 60 years be affected in any way?		NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		NO
If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.		

The application will be submitted to SAHRA as required to receive comments from all relevant authorities.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT (Refer to Appendix E3)

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

(a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;

(b) giving written notice to—
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners 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;
  (iv) 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;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the competent authority;

(c) placing an advertisement in—
  (i) one local newspaper; or
  (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;
(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 local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in sub regulation 54(c)(ii); and
(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
  (i) illiteracy;
  (ii) disability; or
  (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

(a) indicate the details of the application which is subjected to public participation; and
(b) state—
  (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
  (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
  (iii) the nature and location of the activity to which the application relates;
  (iv) where further information on the application or activity can be obtained; and
  (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES (REFER TO APPENDIX E3)

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later

stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT (REFER TO APPENDIX E1)

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

6. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

List of authorities informed:

- **Sakhisiwe Local Municipality**
- **Chris Hani District Municipality**
- **Eastern Cape Provincial Heritage Resources Agency**
- **Dept. Of Water and Sanitation**
- **Eastern Cape Department of Rural Development & Agrarian Reform**
- **Endangered Wildlife Trust**
- **Vulpro – Rockwood farm Queenstown district**

List of authorities from whom comments have been received:

We are now in process of circulating the Draft BAR for comments. We have received comments from the Chris Hani District Municipality – Please refer to Appendix E1.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub regulation to the extent and in the manner as may be agreed to by the competent authority.

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?	NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

No as we expect comments to be received from the Draft BAR that is now in circulation.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 as amended, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

We are still circulating the Draft BAR and main issues raised as well as the responses will be incorporated into the Final BAR and Comments and Response Report.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

Comments and Response Report is attached to this report – Appendix E

2.IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

Alternative (preferred alternative)

Identified Potential Impacts

The potential impacts associated with the proposed development have been identified through the Basic Assessment process and inputs from the various specialist assessments, and then categorised in terms of biophysical and socio-economic parameters. The identified potential impacts have been investigated in detail within the Impact Assessment Phase of this Basic Assessment process.

The identification of key issues and the assessment of the significance of impacts within the process are thus aimed at giving input in the planning phases of the proposed development and ensuring the most viable and least environmentally sensitive environment is utilised for the proposed development.

Potential Impacts that are likely to occur in CONSTRUCTION PHASE

- Loss of Biodiversity and Habitat for fauna species
    - Terrestrial Ecological Disturbance (Direct and Indirect): Temporary or permanent loss of indigenous vegetation cover because of site clearing at the

proposed Feed Mill and Creamery site. The development of the Feed Mill site will decrease open space and ecological corridors.
    - Edge Effects (Direct and Indirect): Edge effects form the animal stocking and Feed Mill site could impact on the remaining natural vegetation and could change the fire regime on the sites.
    - Fauna Species, Movement and Habitat (Indirect): Activity could result in the potential loss of habitat and movement routes for faunal species. Grasslands are most likely utilized by SCCs although there is only possibility for foraging and roosting, no nesting or long-term residence by SCCs is expected.
        - Deterioration of downstream habitats may have greater consequences to SCCs than the limited loss of grassland habitat as all are associated with wetland and aquatic habitat.
    - Impacts on wetlands and surrounding water resources (Direct and Indirect): The first initial location of Finisher Site 3 encroached on the wetland buffer area and this was shifted out, however if the construction camps, site areas and pipeline routes are not clearly demarcated unnecessary encroachment into the wetland and riparian areas could result in negative impacts on the functioning of these systems.
- Flora Species and Vegetation Unit
    - (Direct): Loss of Flora species may be caused as a result of site clearing at the proposed Feed Mill and Creamery site. Some species of special concern may be found in the region of the site but was not observed during vegetation study on site. The site clearing could lead to a reduction in flora species.
- Alien Vegetation (Direct and Indirect)
    - Susceptibility of disturbed areas to proliferation of exotic and alien invasive species. These species can spread to water resources such as wetlands in the vicinity of the sites. These species could also prevent natural flora from re-establishing as part of rehabilitation activities.
    - The seed of alien invasive plant species could spread into the disturbed and stockpiled soil and natural areas.
- Increase in noise due to site preparation (Direct)
- Soil Erosion (Direct and Indirect)
    - Susceptibility of some areas to erosion because of construction related disturbances. Removal of vegetation cover not done in a phased manner may result in erosion of these areas and could result in loss of valuable soil and siltation of adjacent water courses.
- Stormwater (Direct and Indirect)
    - During the construction phase heavy rainfall events could lead “dirty” water flowing from the site into the natural areas. This could lead to pollution of the natural areas and the water resources if stormwater is allowed to flow through for example the batching area.
- Solid Waste (Direct)
    - Solid waste generation during construction activities such as building rubble, concrete and domestic waste that could reach the natural areas and pollute habitat for fauna species.
- Potential impact on ambient air quality (dust generation) (Direct)
    - Dust may be generated from vegetation clearing and exposure of soils and topsoil stockpiles as a result of construction activities.
- Potential socio-economic impacts (Direct)
    - The proposed project will create temporary and permanent employment during the construction phase of the project which will have a positive impact on the region in terms of upliftment of the local communities through salaries paid and transfer of skills.

Potential Impacts that are likely to occur in OPERATIONAL PHASE

- Increased noise generation, during operational phase (Direct)
- Proliferation of Alien vegetation (Direct and Indirect)

    - Inappropriate maintenance activities during the operational phase would also promote the invasion or dominance of alien plant species within the site area that could spread to the adjacent natural areas and impact negatively on the functioning and integrity of these wetlands.
    - Operational and maintenance activities could impact on vegetation that was not impacted on during the construction phase and this could lead to destruction of vegetation and compaction of soils.
    - Cumulative impacts: Proliferation of these species could result in the degradation of the entire system and over time downstream systems as well.
- Potential pollution of surface and groundwater resources (Direct)
    - During the operational phase the various operational sites will generate different wastes on site such as the biodegradable effluent generated by the piggery operations and the domestic waste produced at all operational areas. If proper handling and storage of these various wastes are not done throughout the operational phase and routine maintenance checks done properly then the surface water resources could be polluted by these various waste streams.
        - Deterioration of downstream habitats may have greater consequences to SCCs than the limited loss of grassland habitat as all are associated with wetland and aquatic habitat.
- Stormwater management (Direct):
    - An increase in hard surfaces as a result of the proposed development area could lead to an increase in stormwater run-off and flow velocity that could result in erosion of adjacent areas as well as siltation of the water resources.
- Traffic (Direct):
    - The addition of transport trucks to the site with feed and moving products from the Creamery may increase traffic to the region.
- Employment opportunities: More than 120 new employment opportunities will be created within an area that desperately requires economic upliftment.

Potential Impacts that are likely to occur in DECOMMISSIONING AND CLOSURE PHASE

- Potential of invasive species thriving during the rehabilitation of the sites and proliferating into the natural areas.

There are currently no other discernible impacts envisaged as the life of the proposed operations are planned at more than 25 years. As the operational phase continues any possible impacts of concern will be noted and presented to I&APs as well as the Department.

1.1 IMPACT ASSESSMENT METHODOLOGY

The following assessment methodology has been used for the purpose of assessing impacts because of the construction / establishment and operational phases also including the assessment of the cumulative impacts of the proposed establishment of the new agricultural operations.

The impacts arising from the activities are included in the impact assessment tables. This is to identify activities that require certain environmental management actions to mitigate the impacts arising from them. The assessment of the impacts will be conducted according to a synthesis of criteria required by the integrated environmental management procedure (Table 15).

Table 5: Impact Assessment Table

Extent The physical and spatial scale of the impact.	Footprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
	Site	The impact could affect the whole, or a significant portion of the site.
	Regional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
	National	The impact could have an effect that expands throughout the country (South Africa).
	International	Where the impact has international ramifications that extend beyond the boundaries of South Africa.
Duration The lifetime of the impact, that is measured in relation to the lifetime of the proposed development.	Short Term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the construction phase. Usually ≤ 1 to 5 years
	Medium Term	The impact will last up to the end of the development phases, where after it will be entirely negated. Usually 5 – 15 years .
	Long Term	The impact will continue or last for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter.
	Permanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
Intensity Is the impact destructive or benign, does it destroy the impacted environment, alters its functioning, or slightly alter the environment itself?	Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.
	Moderate	The affected environment is altered, but functions and processes continue, albeit in a modified way.
	High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
Probability The likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time.		
	Improbable	The possibility of the impact occurring is very low, due either to the circumstances, design or experience. The chances of this impact occurring is defined as 25%.
	Probable	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of this impact occurring is defined as 50%.
	Highly Probable	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up before carrying out the

		activity. The chances of this impact occurring is defined as 75%.
	Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100%.

Table 6: Impact Significance Methodology

The Significance of Environmental Impacts is to be assessed by means of the following method: **Significance = Probability x Severity.** Probability describes the likelihood of the impact actually occurring, and is rated below:	
Improbable	Rating = 2
Probable	Rating = 3
Highly Probable	Rating = 4
Definite	Rating = 5
The Severity rating is calculated by multiplying Intensity with Duration. **The Intensity factor is described below:**	
Low Intensity	Factor 1
Moderate Intensity	Factor 2
High Intensity	Factor 3
The Duration factor is described below:	
Short term	Factor 2
Moderate term	Factor 3
Long term	Factor 4
Permanent	Factor 5
The Severity rating obtained from the above calculations are discussed below:	
Low severity (Rating 2)	Calculated values 2 to 4
Moderate severity (Rating 3)	Calculated values 5 to 8
High severity (Rating 4)	Calculated values 9 to 12
Very High severity (Rating 5)	Calculated values 13 to 16 or more
Severity factors below 3 indicate no impact	
A Significance Rating = Severity Rating x Probability Rating. The significance rating should influence the development project as described below:	
Low Significance (Rating 4 – 6)	Positive Impact and negative impacts of Low significance should have no influence on the proposed development project.

Moderate Significance (Rating 7 to 12)	Positive Impact – Should indicate that the proposed project should be approved. Negative impact – Should be mitigated or mitigation measures should be stipulated before the proposed project can be approved.
High Significance (Rating 13 – 18)	Negative Impact – Should weigh towards decision to terminate the proposed project if not mitigation measures can be implemented. Mitigation measures should be stipulated and performed to reduce the significance to at least low significance.
Very High Significance (Rating 19 – 25 and more)	

Mitigation – The impacts that are generated by the development can be minimised if measures are implemented to reduce the impacts. The mitigation measures ensure that the development considers the environment and the predicted impacts to minimise impacts and achieve sustainable development.

Determination of Significance – Without Mitigation – Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact "without mitigation" is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as "positive". Significance will be rated on the following scale:

No significance: The impact is not substantial and does not require any mitigation action;

Low: The impact is of little importance, but may require limited mitigation;

Medium: The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels; and

High: The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

Determination of Significance – With Mitigation – Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures. Significance with mitigation will be rated on the following scale:

No significance: The impact will be mitigated to the point where it is regarded as insubstantial; Low: The impact will be mitigated to the point where it is of limited importance;

Low to medium: The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;

Medium: Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw;

Medium to high: The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels; and

High: The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire development option or entire project proposal unacceptable.

Assessment Weighting – Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project's life cycle. To establish a defined base upon which it becomes feasible to make an informed decision, it will be necessary to weigh and rank all the identified criteria.

Identifying the Potential Impacts Without Mitigation Measures (WOM) – Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).

Calculation 1: Significance Rating (WOM) = (Extent + Intensity + Duration + Probability) x Weighting Factor

Identifying the Potential Impacts with Mitigation Measures (WM) – In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact.

Consideration will also be given to potential cumulative impacts as illustrated below, occur as a result from the combined effect of incremental changes caused by other activities together with the proposed project. In other words, several developments with insignificant impacts individually may, when viewed together, have a significant cumulative adverse impact on the environment.

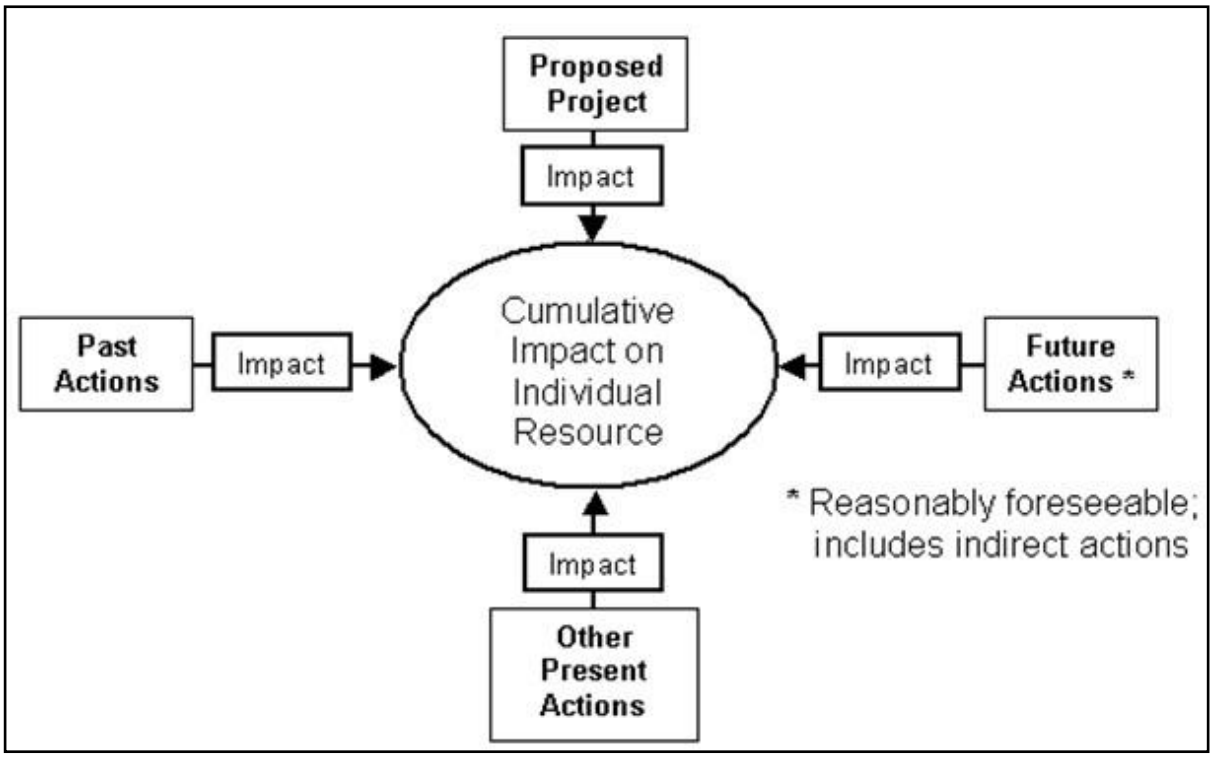


Figure 14: Cumulative impacts illustration ***(****https://www.environment.fhwa.dot.gov/nepa/QAimpact.aspx* ***)***

An indication of the degree of confidence (low, medium or high) that there is, in the predictions made for each impact, based on the available information and the specialist /. EAP's level of knowledge and expertise will also be reported. The Degree of confidence will however not be taken into account in the determination of consequence or probability.

This assessment is initially done for the scenario where no mitigation measures are implemented. Mitigation measures will then be identified and considered for each impact and the assessment repeated in order to determine the significance of the residual impacts (the impact remaining after the mitigation measure has been implemented) The results of the assessment of the significance of the residual impacts will then be linked to decision-making by Authorities.

Table 7: Construction Phase - Impact Table

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Pollution of the soil and water due to spillages of Hazardous materials such as Petroleum, oil and concrete	Direct: Pollution of Water sources and soil Cumulative: Pollution of water sources and other construction activities could impair the functioning of the surrounding wetland systems.	Probability = 4 Intensity = 2 Duration = 2 Severity = 2 x 2 = 4 (Low Severity) (Rating 2) Significance = 4 x 2 = 8 **Moderate Negative Significance**	• Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants. • During the construction phase a berm should be placed on the boundary of site 3 and 4 with a collection sump on the lowest point to prevent any contaminated water entering the wetland or natural areas. • Soil contaminated by hazardous materials such as oil residue shall be treated with oil absorbent such as Drizit or similar and this material removed to an approved waste site. • All construction materials liable to spillage are to be stored in appropriate structures with impermeable flooring and bund walls with sufficient capacity to contain a spill. • No vehicles may be washed, serviced or repaired within naturally vegetated areas, except in suitably designed and protected areas. In case of an emergency, repairs may be done by implementing adequate spill containment.	Probability = 2 Intensity = 1 Duration = 2 Severity = 2 x 1 = 2 (Low Severity) (Rating 2) Significance = 2 x 2 = 4 **Low Negative Significance**

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
			• Emergency plans must be in place in the event of an accidental spillage near the wetland system.	
Destruction of Vegetation and Potential Increase in invasive vegetation	Direct: Vegetation will be removed at the proposed Creamery and Feed Mill site. Cumulative: Removal of vegetation together with ineffective stormwater management could lead to siltation of the watercourses.	Probability = 4 Intensity = 2 Duration = 2 Severity = 2 x 2 = 4 (Low Severity) (Rating 2) Significance = 2 x 4 = 8 Moderate Negative significance	• Category 1b invasive species should be removed from the site prior to earthworks. This will limit the spread of such species downstream and into disturbed soils • Any proclaimed weed or alien species that germinates during the contract period shall be cleared by hand before flowering. • Imported fill material should be monitored during and after construction for the presence of any alien species. Any such species should be removed immediately • Vehicles and equipment should be cleared of plant material before gaining access to the site. • Continuously monitor the emergence of alien invasive plant species on the site and remove such species as soon as they become apparent. • Keep the development footprint, including site camps, as small as possible • Only use indigenous species naturally occurring on the	Probability = 2 Intensity = 1 Duration = 2 Severity = 2 x 1 = 2 (Low Severity) (Rating 2) Significance = 2 x 2 = 4 Low Negative Significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
			site for rehabilitation or landscaping. • Clearance of the development footprint must be done in a phased approach. • Topsoil stockpiles must be stored separately and used in rehabilitation activities. • Limit the use of chemicals (pesticides and herbicides) and do not spray in windy conditions. Pesticides may impact on pollinators and lead to a decline in species diversity and densities	
Degradation of remaining grasslands	Direct/Indirect: The direct impacts will be on the proposed Creamery and Feed Mill sites, but if mitigation measures are not implemented, then indirect impacts could occur on adjacent natural areas. Cumulative: Degradation of adjacent natural grasslands could lead to decline in specie numbers and suitable habitat for fauna.	Probability = 3 Intensity = 3 Duration = 3 Severity = 3 x 3 = 9 (High Severity) (Rating 4) Significance = 3 x 4 = 12 Moderate Negative significance	• Only clear the footprint needed for the proposed activity. • Do not infringe into natural areas beyond the proposed footprints. • No random-access routes may be established to prevent the unnecessary trampling of vegetation.	Probability = 2 Intensity = 1 Duration = 2 Severity = 2 x 1 = 2 (Low Severity) (Rating 2) Significance = 2 x 2 = 4 Low Negative Significance
Destruction of habitats for SCC	Direct: Construction activities that do not remain within the designated footprint areas will result in	Probability = 4 Intensity = 2 Duration = 4 Severity = 2 x 4 = 8 (Moderate Severity) (Rating 3)	• Shift Piggery Site 3 out of the wetland buffer zone and grassland area. • Avoidance and minimisation of activities in grassland has already been considered in	Probability = 3 Intensity = 1 Duration = 2 Severity = 2 x 1 = 2 (Low Severity) (Rating 2) Significance = 2 x 3 = 6

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
	destruction of valuable habitat. Cumulative: Loss of habitat could result in loss of species in the area and have an effect on the ecological functioning of the grasslands and wetland systems.	Significance = 3 x4 = 12 Moderate Negative significance	terms of the development plan • Further minimise activities in grasslands (Medium SEI) as far as possible • At the Site 4 consider placing structures in a manner that will maintain tracts of grassland corridors for smaller fauna (construct to maintain a western or eastern corridor of grassland, or scatter buildings between connected patches of grassland with formalise pedestrian paths to prevent deterioration of interspersed grassy areas • Maintain the rocky and marshy area as part of the natural landscaping (possibly establish a picnic / lunch break area at this area • Peg out and demarcate construction areas for development and keep all activity in these designated areas only. • Plan and implement a proper engineered storm-water management plan from the onset to prevent excessive runoff and associated erosion and sedimentation of downstream habitats.	Low Negative Significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Loss of Wetland habitat and biodiversity	Direct: If construction of operational activities encroaches on the wetland habitat, then wetland functioning, and integrity can be degraded. Cumulative: Continuous negative impacts could result in head-cut erosion formation within the wetland areas which could lead to siltation of the water courses and ultimately destruction of the entire wetland system.	Probability = 4 Intensity = 3 Duration = 4 Severity = 3 x 4 =12 (High Severity) (Rating 4) Significance = 4 x4 = 16 High Negative significance	• Shift Piggery Site 3 out of the wetland buffer zone and grassland area. • Avoidance and minimisation of activities in grassland has already been considered in terms of the development plan • Further minimise activities in grasslands (Medium SEI) as far as possible • At the Site 4 consider placing structures in a manner that will maintain tracts of grassland corridors for smaller fauna (construct to maintain a western or eastern corridor of grassland, or scatter buildings between connected patches of grassland with formalise pedestrian paths to prevent deterioration of interspersed grassy areas • Maintain the rocky and marshy area as part of the natural landscaping (possibly establish a picnic / lunch break area at this area • Peg out and demarcate construction areas for development and keep all activity in these designated areas only. • Plan and implement a proper engineered storm-water management plan from the onset to prevent	Probability = 2 Intensity = 1 Duration = 2 Severity = 2 x 1 =2 (Low Severity) (Rating 2) Significance = 2 x 2 = 4 Low Negative Significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
			excessive runoff and associated erosion and sedimentation of downstream habitats.	
Disturbance of Fauna on site	Direct: Disturbance of fauna on site could lead to changing in behavioural patterns that could have a negative effect on the species in the long term.	Probability = 2 Intensity = 2 Duration = 2 Severity = 2x 2 =4 (Low Severity) (Rating 2) Significance = 2x2 = 4 Low Negative significance	• Construction teams may not feed wildlife and ensure that all food and food waste, including domestic waste, is placed in sealed containers, and not exposed on site. • Provide adequate waste removal skips to prevent attraction of rats and other alien scavenging species to the sites. • Any TOP species /SCCs will be monitored and if under threat, activity will cease until species move off-site, or species will be relocated to similar nearby habitats by experienced professionals with the appropriate permits. • No poisons are to be used on site for the control of vermin (insects, rodents, small scavenging carnivores), unless these are environmentally friendly and can be locally contained (do not use poisons that fauna will carry off-site before taking affect or poisons known to bio-accumulate in the environment). • Average speed limits should be communicated to all staff.	Probability = 2 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (Low Severity) (Rating 2) Significance = 2x2 = 4 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Sewage pollution of the soil layer and water resources, Increase bacteria load and E.coli in the water.	Direct: Pollution could result in negative impacts on the soil layer and water resources which could impact on quality for downstream users.	Probability = 2 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (Low Severity) (Rating 2) Significance = 2x2 = 4 Low Negative significance	• Portable Mobile sanitary facilities are to be provided and maintained for construction crews. • Maintenance must include their removal without sewage spillage. • Portable septic toilets are to be located outside of the 1:100-year flood line or wetland buffer zones. • Under no circumstances may ablutions occur outside of the provided facilities. • No uncontrolled discharges from the construction crew camps to any surface water resources shall be permitted. • Any discharge points need to be approved by the relevant authority. • In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water Affairs and Sanitation (DWS) must be informed immediately.	Probability = 2 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (Low Severity) (Rating 2) Significance = 2x2 = 4 Low Negative significance
Increase in hard surfaces due to compaction and concrete mixing	Direct: Hard Surfaces could lead to increase in flow velocity and increase in the susceptibility of soils to erosion. Cumulative: Erosion of soils adjacent to the site could result in siltation	Probability = 3 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (Low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance	• Concrete is to be mixed only on an impermeable surface such as a batching tray with raised sides and not on exposed soil, where runoff could occur • Concrete and tar shall only be mixed on mixing trays and in areas which have	Probability = 2 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (Low Severity) (Rating 2) Significance = 2x2 = 4 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
	of the water courses and negative impacts on plant life.		been specially demarcated for this purpose. • All concrete and tar that is spilled outside these areas shall be promptly removed by the Contractor and taken to an approved landfill • After all the concrete/tar mixing is complete all waste concrete / tar shall be removed from the batching area and disposed of at an approved dumpsite. • Storm water shall not be allowed to flow through the batching area. • Cement sediment shall be removed from time to time and disposed of in a manner as instructed by the ECO. • These sites must be rehabilitated prior to commencing the operational phase	
Construction of pipelines and road surfaces	Direct: Construction activities could create preferential flow paths that can result in erosion and degradation of the natural areas. Cumulative: Construction activities and inadequate maintenance activities during the rehabilitation and operational phases could result in the	Probability = 3 Intensity = 2 Duration = 2 Severity = 3x 2 =6 (Moderate Severity) (Rating 3) Significance = 3x3 = 9 Moderate Negative significance	• The construction of the proposed infrastructure such as pipelines and the new proposed upgrade of the access road to the creamery site should preferably occur during the dry season in the months of May, June, July and August when rainfall is non-existent to minimal. • The new proposed road should be constructed on the current road surface and	Probability = 2 Intensity = 2 Duration = 2 Severity = 2x 3 =6 (Moderate Severity) (Rating 3) Significance = 3x2 = 6 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
	degradation and altered functioning abilities of wetlands in the vicinity of the site.		then extended to the creamery area. • Runoff from roads must be managed to avoid erosion and pollution problems. Where excessive loose sediment is created, attenuation swales and / or soils screens should be installed. • Culverts must be installed at the proposed road site to ensure that the water flow to the downstream wetland area is not stopped. • Vegetation and soil must be retained in position for as long as possible and removed immediately before construction/earthworks commences. • Backfill must be compacted to form a stabilised and durable blanket. • Re-vegetation of disturbed areas must be undertaken with site indigenous species and in accordance with the instructions issued by the Environmental Control Officer (ECO). Areas where soil compaction or ruts developed should be rehabilitated. • Pipelines must be installed and the soil place back as soon as possible. The soil must be shaped to mimic the natural topography and	

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
			re-vegetated to minimize the potential for erosion. • The pipeline routes must be inspected on a weekly basis for the proliferation of any invasive species. • All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds. It should also only be stored for the minimum amount of time necessary. • Contours and other management measures should be implemented to ensure that runoff from storm events is minimized • Silt traps and culverts should be regularly maintained and cleared to ensure effective drainage.	
Increase in littering surrounding construction area	Direct: Littering around the site could negatively affect Fauna species and result in some species dying. Indirect: Litter could blow across the site to adjacent landowners and affect their cattle and other fauna species.	Probability = 4 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (low Severity) (Rating 2) Significance = 2x4 = 8 Moderate Negative significance	• Store all litter carefully so it cannot be washed or blown into any of the water resources or natural areas within the study area. • Provide bins for construction workers and staff at appropriate locations, particularly where food is consumed. • The construction site should be cleaned daily, and litter removed. • Conduct ongoing staff awareness programs so as	Probability = 3 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
			to reinforce the need to avoid littering • Littering and contamination of water sources during construction must be mitigated by effective construction camp management	
Construction of Coal Storage area, treatment plant and fat traps at the Creamery operations	Direct: If planning and construction is not done effectively then “clean” water could enter these areas and pollute adjacent natural resources. Cumulative: Polluted water could result in negative impacts on downstream users if construction activities lead to in-effective operational areas.	Probability = 3 Intensity = 2 Duration = 3 Severity = 3x 2 =6 (Moderate Severity) (Rating 3) Significance = 3x9 = 9 Moderate Negative significance	• The coal storage area must be constructed of a concrete floor with adequate bunding to ensure that no “clean” stormwater can enter the site. • Coal storage must be managed to ensure that only the specified amount is stored within the storage area. • The fat separation area must be bermed off to ensure that no water enters or exits this area. • The area must be inspected on a regular basis and only assigned persons must enter this area.	Probability = 2 Intensity = 2 Duration = 3 Severity = 3x 2 =6 (Moderate Severity) (Rating 3) Significance = 3x2 = 6 Low Negative significance
Construction Camp and Awareness to all conditions of the EMPr	Direct: Encroachment into natural areas could result in degradation of these areas.	Probability = 4 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (low Severity) (Rating 2) Significance = 2x4 = 8 Moderate Negative significance	• The construction camp must be established outside of any sensitive areas and it must be clearly demarcated and temporarily fenced off. • No open fires are permitted near the naturally vegetated areas. • An Environmental awareness training programme must be	Probability = 3 Intensity = 1 Duration = 2 Severity = 1x 2 =2 (low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
			established to inform the various construction teams of the requirements stipulated within the EMPr as well as other relevant authorisations received. • The construction crews must be aware to the methods statements compiled and the precise site layouts as well as buffer zones. • Employees must be trained to handle spill clean-ups and an incident report must be compiled as well as the method of handling the situation.	

Table 8 Operational Phase – Impact Table

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Agricultural Impact and land use change	Direct: Overutilization of available water resources could lead to negative impacts on the operations in the long-term as well as impacts on activities of downstream users. Cumulative: Overutilization of resources and encroachment into natural areas can lead to	Probability = 4 Intensity = 2 Duration = 2 Severity = 2x 2 =4(low Severity) (Rating 2) Significance = 2x4 = 8 Moderate Negative significance	• The proposed expansion will increase the potential of the agricultural activities on the land and if the required mitigation measures are implemented the project can be positive from an economic and environmental perspective. • The new operations must be operated sustainably and aim to incorporate	Probability = 3 Intensity = 2 Duration = 2 Severity = 2x 2 =4(low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
	natural systems not being able to deliver any ecosystem services and result in negative environmental and economic impacts on the operations and adjacent landowners.		new and emerging technologies into the operations to reduce aspects such as water-use and waste generation.	
Operation and maintenance of biodegradable effluent generated by the piggery operations	Direct: In-efficient use of treated biodegradable effluent could result in pollution and nutrification of water resources, surface and groundwater. Cumulative: Continuous over application and encroachment into natural systems could lead to pollution further downstream.	Probability = 3 Intensity = 2 Duration = 2 Severity = 2x 2 =4(low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance	• The dams must be constructed according to approved designs. • The biodegradable effluent reticulation infrastructure must be inspected on a continuous basis to ensure that all system aspects are functioning optimally and to ensure that any leakages or faults can be rectified immediately. • A responsible person must be appointed to oversee the maintenance of these structures and equipment and any incident reports must be submitted to site management as well as the ECO. • Groundwater and Surface water resources should be tested on a quarterly basis until a baseline is established and then it can be done	Probability = 2 Intensity = 2 Duration = 2 Severity = 2x 2 =4(low Severity) (Rating 2) Significance = 2x2 = 2 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
			bi-annually or when an incident occurs.	
Waste Management and domestic solid waste	Direct: If solid waste is not handled and stored as stipulated it could lead to pollution of natural areas. Indirect: Solid waste collected by contractors that are not registered could be dumped at un-registered facilities and lead to pollution of those areas. Cumulative: Build up of solid waste in natural areas could lead to functioning of these areas being impaired.	Probability = 4 Intensity = 3 Duration = 2 Severity = 2x3 =6 (Moderate Severity) (Rating 3) Significance = 3x4 = 12 Moderate Negative significance	• General waste generated during the operations of the Agri development must be collected in waste bins that are emptied on a regular basis into a central waste collection facility for each site. • General waste is to be collected on a regular basis to be emptied at the nearest municipal solid waste disposal site. Recycling is always encouraged. • Record must be kept of the waste removed to an approved waste facility. • Septic tanks must be serviced by the Municipality on a regular basis.	Probability = 3 Intensity = 2 Duration = 2 Severity = 2x 2 =4(low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance
Waste management of mortality “pits” and composting facility	Direct: If the composting facility is not maintained in sound working condition it could lead to pollution of the soil layer. Cumulative: Continuous pollution of the soil layer could lead	Probability = 4 Intensity = 3 Duration = 2 Severity = 2x3 =6 (Moderate Severity) (Rating 3) Significance = 3x4 = 12 Moderate Negative significance	• No burial of carcasses will be allowed on site. • An enclosed composting facility will be constructed on site to compost the solid manure component and the carcasses will also be	Probability = 3 Intensity = 2 Duration = 2 Severity = 2x 2 =4(low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
	to contamination of groundwater resources.		disposed of within this facility. • The concrete lined area should be inspected on a regular basis. • Stormwater should not be allowed to enter the channels must be inspected for accumulation of debris. Stormwater must be diverted to the solid/liquid separation sump.	
Loss of Fauna & Flora Habitat and protected species	Direct: If the operational activities do not remain within the designated areas, then it will result in the loss of wetland functionality. Indirect: Proliferation of alien and invasive species in the natural areas could result in degradation of adjacent farms. Cumulative: Continuous impacts that result in the loss of Fauna and Flora species will ultimately result in the loss of integrity and functioning of the natural systems.	Probability = 4 Intensity = 2 Duration = 2 Severity = 2x4=4 (Low Severity) (Rating 2) Significance = 2x4 = 8 Moderate Negative significance	• Operational activities must remain within the designated footprint areas and not encroach on the natural areas adjacent to the sites. • An alien and invasive management programme must be established to ensure that the operational areas as well as adjacent natural areas are kept clear of invasive species and that the biodiversity of the entire farm area is enhanced. • Vehicles must not drive into the wetland areas and only utilize existing roads.	Probability = 3 Intensity = 2 Duration = 2 Severity = 2x 2 =4(low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
Road and Pipeline Maintenance	Direct: If maintenance is not done continuously then it could lead to negative impacts at stream crossings.	Probability = 4 Intensity = 3 Duration = 2 Severity = 2x3=6 (Moderate Severity) (Rating 3) Significance = 3x4 = 12 Moderate Negative significance	• Monitor all roads around the proposed developments to ensure no erosion occurs and that the accompanying sediment loads are not washed into the wetlands. • Inspect culverts for accumulation of debris	Probability = 3 Intensity = 2 Duration = 2 Severity = 2x4=4 (Low Severity) (Rating 2) Significance = 2x3 = 6 Low Negative significance
Potential for pollution due to treatment of effluent at the Creamery operations	Direct: The proposed treatment system, although enclosed, could result in pollution of the natural areas if not maintained in a sound working order. Cumulative: Continuous pollution could result in wetland systems losing functionality.	Probability = 2 Intensity = 3 Duration = 2 Severity = 2x3=6 (Moderate Severity) (Rating 3) Significance = 3x2 =6 Low Negative significance	• The proposed treatment system must be inspected on a regular basis to ensure that it is functioning optimally and that the “clean” treated water is within standard parameters. • Geobags utilised for storage of “solid” waste generated by treatment must be inspected on a regular basis and approved contractors must remove the waste from site. • The fat separation area must be inspected on a regular basis by a specifically appointed individual	Probability = 2 Intensity = 2 Duration = 2 Severity = 2x2=4 (Low Severity) (Rating 2) Significance = 2x2 =4 Low Negative significance
Soil and surface water pollution from general activities	Direct: Pollution will result in the deteriorating quality of the soil and water sources. Cumulative:	Probability = 3 Intensity = 2 Duration = 2 Severity = 2x2=4 (Low Severity) (Rating 2) Significance = 2x3 =6 Low Negative significance	• Farm vehicles and equipment need to be inspected on a regular basis and maintained in a good working order to reduce the probability of	Probability = 2 Intensity = 2 Duration = 2 Severity = 2x2=4 (Low Severity) (Rating 2) Significance = 2x2 =4 Low Negative significance

Potential Impacts	Type of Impact	Significance Rating before mitigation	Proposed Mitigation	Significance Rating after mitigation
	Continuous pollution of the natural resources could result in pollution of the groundwater resources that could negatively impact on water availability and usability.		leakage of fuels and lubricants. • Ensure the continuation of Environmental Awareness Training and that employees are aware of the importance of water security and functioning wetlands. • Fuel storage areas must be bunded with adequate capacity to contain any accidental spillage. • Vehicles must only be washed, serviced and re-fuelled within designated areas. • Drip trays must be available at all parking areas.	

3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative A (preferred alternative)

The proposed project entails the establishment of new commercial piggery operations, a Creamery operation and a Feed Mill as part of the expansion of current agricultural activities taking place on site. Thus, the main impacts on the proposed site and surrounding environment could be the following:

- Fragmentation of natural vegetation and intact habitats
- Pollution of soil, surface and groundwater resources
- Erosion and siltation of wetland systems
- Creation of preferential flow paths that lead to formation of head-cut erosion in wetland systems

Most of these impacts will be experienced during the construction or establishment phase such as the removal of vegetation and alteration of the landscape to allow for construction of the various sites and pipelines.

Possible impacts can also be experienced during the operational phase of the project, such as the pollution and nutrification of natural systems by over application of the treated biodegradable effluent and proliferation of alien and invasive species into the remaining natural environments. However, these impacts can easily be mitigated by implementing the proposed mitigation measures such as the following:

- Placement of layouts of the proposed Creamery and Feed Mill site according to recommendations by the Fauna and Flora specialists.
- Implementation of a continuous eradication plan for alien and invasive species around the site and natural areas.
- Monitoring of water use, waste generated and utilised on site to ensure no over-utilization or over-application occurs.
- Implementation of a maintenance plan on all infrastructure, vehicles and equipment
- The establishment of vegetated filter strips around existing cultivated fields and pastures

The proposed project is situated within an area that is characterized by agricultural activities and an active quarry mine on the other side of the R410 road. There are remaining natural areas and wetland systems in between the existing cultivated fields. The largest extent of the proposed development will be situated on current cultivated fields to minimize the impacts on the remaining natural vegetation.

It is imperative that the remaining natural areas not be encroached upon and that the wetland systems do not degrade any further. The proposed mitigation measures will allow the applicants to enhance these systems and natural areas for the benefit of their operations and downstream users.

The overall negative impacts of the site can be mitigated to low significance and therefore the development activities are not expected to impact on the surrounding areas in a detrimental manner. The applicant needs to continually update their Environmental Management programmes on site as well as their Environmental Awareness training programmes to ensure that the operations remain sustainable in the long-term and assists in enhancing the functioning of the natural systems on site. By doing this the project can be developed and operated in a sustainable manner to positive effect of the site and adjacent areas.

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SECTION E. RECOMMENDATIONS OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES
Is an EMPr attached?	YES

The EMPr must be attached as Appendix F.

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

Based on the information provided it is the opinion of BioBlue Environmental Sustainability that no significant fatal flaws have been identified for the Proposed Construction of the Elliot Agricultural Project situated near town of Khowa within the Sakhisizwe Local Municipality (Chris Hani District), Eastern Cape Province. The information contained within this report is sufficient enough to allow DEDEAT to make an informed decision. The project is in line with the regions plan to expend agriculture and increase work opportunities.

BioBlue Environmental Sustainability therefore recommends that Environmental Authorisation be granted for the proposed project based on the following recommendations.

- That strict adherence to the relevant mitigation measures described above and compliance with the attached EMP (Appendix F) is adhered to throughout all phases of the proposed project in order to reduce the risk or significance of impacts to an acceptable level.
- An Environmental Control Officer must be appointed prior to the commencement of construction.
- All reports, licenses and authorizations must be available on site.
- No trees or other cleared material may be dumped within the adjacent natural areas.
- All other legislation and associated approvals are obtained prior to commissioning of the facility.

- Invasive alien plant management be made a priority during construction of the development and continued throughout the operational phase
- A search and rescue for PNCO plant species and small fauna (mainly reptiles) should be undertaken prior to commencement of construction of the Creamery and Feed Mill site
- All wetland areas and buffer zones should be clearly demarcated and indicated before construction commences. No entry into any demarcated wetland area should be allowed, except for the removal of alien and invasive species
- Vegetated filter strips should be established along all cultivated fields.
- A Maintenance and monitoring plan for all infrastructure and roads must be established and implemented.
- Vehicles and equipment have to be maintained throughout the operations and drip trays and spill kits need to be available on site.
- The integrity of the natural areas must be kept intact and if any signs of degradation are noted, specialists must be contacted to assist in implementing the required mitigation and rehabilitation measures.
- Treated biodegradable effluent must be applied on authorized areas (stipulated within the Water-use License) only and as prescribed by the requirements of each crop.
- Water quality and borehole depths must be monitored to ensure that mitigation measures can be implemented as soon as possible.
- In the event of any Culturally or paleontological significant finds during the construction or operational phases, a specialist must be contacted, and activities must cease in the vicinity of the find.
- Plan and construct the layouts as prescribed by the various specialist assessments.

SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information

When to use this form

This form must be used to apply for the amendment of an environmental authorisation. An amendment includes adding, substituting, removing or changing a condition or requirement, updating and changing details and correcting a technical error.

Kindly note that:

9. This application form is current as of 07 April 2017. It is the responsibility of the EAP/applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.

10. The application must be typed within the spaces provided in the form. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. It is in the form of a table that can extend itself as each space is filled with typing.

11. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.

12. Incomplete applications may be returned to the applicant for revision.

13. The use of "not applicable" in the form must be done with circumspection as if it is used in respect of material information that is required by the competent authority for assessing the application, and may result in the rejection of the application as provided for in the regulations.

14. The form and all attachments must be handed in at the offices of the relevant DEDEAT Region/Head Office as detailed below.

15. No faxed or e-mailed applications will be accepted**. Only hand delivered or posted applications will be accepted.**

16. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.

17. This serves to confirm the banking details of Eastern Cape Provincial Government as follows:-

18. Account Name: ECPG Department of Economic Development, Environmental Affairs and Tourism

- Account Number: 273021621
- Type of account: Current Account
- Branch: King Williams Town
- Branch Code: 050419
- STANDARD BANK

Please reference payment as follows:

19. Name of the region where the application will be submitted as abbreviated below, followed by an indication of the type of application i.e. Amendment, the reference number for the authorisation, and the name of the Environmental Assessment Consultancy.

- Alfred NZO- AN
- Amathole – A
- Sarah Baartman- SB
- Chris Hani- CH
- Joe Gqabi- JQ
- O R Tambo- ORT

20. Example if an application is to be submitted to Alfred Nzo Region for an Amendment, the reference should reflect as AN/Amendment/Reference Number/Environmental Consultancy.

21. NB!! THE PROOF OF PAYMENT MUST BE ATTACHED TO THE APPLICATION FORM ON SUBMISSION.

14 The holder of the environmental authorization may at least three months prior to the expiry of the validity period apply for the amendment.

IMPORTANT NOTE:

DEPARTMENTAL DETAILS

Alfred Nzo Region	Amathole Region	Sarah Baartman Region
Regional Manager: Environmental Affairs Dept of Economic Development & Environmental Affairs Private Bag X3513 Kokstad, 4700 **PHYSICAL ADDRESS** Maluti College of Education Maluti 4740 Tel:[039]727 4601/4982 Fax: [039] 727 4601	Regional Manager: Environmental Affairs Dept of Economic Development & Environmental Affairs Private Bag X9060 East London, 5200 **PHYSICAL ADDRESS** Palm Square Business Park Alderwood House Beacon Bay, East London Tel:[043]707 4000 Fax:[043] 748 2069/97	Regional Manager: Environmental Affairs Dept of Economic Development & Environmental Affairs Private Bag X 5001 Greenacres, 6057 **PHYSICAL ADDRESS** Collegiate House, Cnr Belmont Terrace & Castle Hill Central, Port Elizabeth Tel:[041] 508 5800 Fax:[041] 585 1958
Chris Hani Region Regional Manager: Environmental Affairs Dept of Economic Development & Environmental Affairs P O Box 9636 Queenstown, 5320 **PHYSICAL ADDRESS** Komani Office Park, Block E, Queenstown Tel: [045]808 4000 Fax:[045]858 8132/5	**Joe Gqabi Region** Regional Manager: Environmental Affairs Dept of Economic Development & Environmental Affairs Private Bag X016 Aliwal North, 9750 **PHYSICAL ADDRESS** 10 Smith Street Aliwal North, 9750 Tel:[051]6332901 Fax:[051]633 3117	**OR Tambo Region** Regional Manager: Environmental Affairs Dept of Economic Development & Environmental Affairs Private Bag X5029 Mthatha, 5100 **PHYSICAL ADDRESS** Old Radio Transkei Building, Cnr Victoria & York Roads, Mthatha Tel:[047]531 1191 Fax:[047] 531 2887
Head Office- Bhisho (General Enquiries) Director: Environmental Impact Management Department of Economic Development, Environmental Affairs & Tourism Private Bag X0054 Bhisho 5605 **PHYSICAL ADDRESS** Beacon Hill Hockley Close King William's Town Tel: [043] 605 7151/7094/7099/7138 Fax:[043] 605 7300		

(For official use only)

Amendment Reference Number:	
NEAS Number:	
Date Received:	

A. BACKGROUND INFORMATION

1. Details relating to the environmental authorisation

Environmental authorisation number in respect of which an amendment is applied for:	
Date of issue of environmental authorisation:	
Activity/ies for which authorisation was granted:	

Project Title:	
Property description	

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application as was in the original authorization.

Physical/Street address where authorised activity is taking or will take place:	

A certified copy of the environmental authorization **must** be attached to this application.

Certified copy of environmental authorization attached? **Y/N**	
If no, please provide reasons	

2. Details of the applicant for an amendment

Name of person to whom the environmental authorisation was issued:			
Trading name (if any):			
Contact person:			
Physical address:			
Postal address:			
Postal code:		Cell:	
Telephone:		Fax:	
E-mail:			

3. Details of the environmental assessment practitioner

If an environmental assessment practitioner is being used, name of environmental assessment practitioner:			
Contact person:			
Postal address:			
Postal code:		Cell:	
Telephone:		Fax:	
E-mail:			
Qualifications & relevant experience			
Professional affiliation(s) (if any)			

4. Details of landowner

Name of landowner if the person to whom the environmental authorisation has been issued is not the owner:			
Contact person:			
Postal address:			
Postal code:		Cell:	
Telephone:		Fax**:**	
E-mail:			
Has the owner been informed of this application?			

If there is more than one landowner, please attach a list of landowners with their contact details to this application.

B. AMENDMENTS APPLIED FOR AND RELATED INFORMATION

1. Amendments requested

Describe the amendments that are applied and an explanation of why the amendments are required in the table below.

Amendment requested	Reason why amendment is required

If there is insufficient space in the table above the table may be expanded if being completed electronically or attach an extra page.

	Extra page attached

2. Environmental impacts

2.1 Describe any negative environmental impacts that may occur if the application is granted. Information on any increases in air emissions, waste generation, discharges to water and impacts of the natural or cultural environment must be included.

If there is insufficient space in the table above the table may be expanded if being completed electronically, or attach an extra page.

	Extra page attached

2.2 Describe any negative environmental impacts that may occur if the application is not granted.

If there is insufficient space in the table above the table may be expanded if being completed electronically, or attach an extra page and tick the box.

	Extra page attached

2.3 Describe any positive environmental impacts that may occur if the application is granted. Information on any reduction in the ecological footprint, air emissions, waste generation and discharges to water must be included.

If there is insufficient space in the table above the table may be expanded if being completed electronically, or attach an extra page and tick the box.

	Extra page attached

3. Authorisation from other government departments

Are any permissions, licenses or other authorisations required from other departments before the requested amendments can be effected?

Yes		No	

If yes, please complete the table below.

Name of department and contact person	Authorisation required	Authorisation applied for (yes/ no)

4. Rights and interests of other parties

Will the rights or interests of other parties be adversely affected by the granting of the application? This relates to the substantive amendment clause in terms of **sub-regulation 41 (3)**

Yes		No	

If yes, please describe the parties who may be affected and the manner is which they may be affected in the space below.

If no, describe why other parties will not be adversely affected in the space below.

NOTE:

The Department is entitled to request further information if it believes it is necessary for the consideration of the application. If the application is for a substantive amendment or if the rights or interests of other parties are likely to be adversely affected, the Department will instruct the applicant to conduct a public participation process and any investigations and assessments that it deems necessary.

C. DECLARATION

I, _____ , -

- Am duly authorised to make this application on behalf of the applicant; *(delete if the application is directly made by the applicant)*
- Apply for the amendment(s) of the environmental authorisation referred to in _____;
- Declare that the information in this application form, including any attachment, is not false or misleading in any manner.

Signature of the applicant and position if the applicant is a legal entity:

Name of company:

Date:

Signature of the Commissioner of Oaths:

Date:

Designation:

Official stamp (below):

D. CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed; and
- The form has been signed by the holder of the authorisation