APPLICANT:

NORTH-WEST DEPARTMENT OF ECONOMIC DEVELOPMENT, ENVIRONMENT, CONSERVATION AND TOURISM (NW DEDECT)

ENVIRONMENTAL RECTIFICATION REPORT PERTAINING TO THE COMMENCEMENT OF SILK PROCESSING FACILITIES AT THE GANYESA WILD SILK PROJECT ON A PART OF THE FARM GANYESA-A 1006-IN, GANYESA, NORTH WEST PROVINCE

DEA REF: 14/12/16/3/2/47

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POLYGON
ENVIRONMENTAL PLANNING

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14/12/16/3/2/47:

APPLICATION TO RECTIFY UNLAWFUL COMMENCEMENT OF LISTED ACTIVITY FOR THE COMMENCEMENT OF CONSTRUCTION OF SILK PROCESSING FACILITIES AT THE GANYESA WILD SILK PROJECT, GANYESA, NORTH WEST PROVINCE

ENVIRONMENTAL RECTIFICATION REPORT

Contents

APPENDICES

Appendix A: Locality map and aerial photograph
Appendix B: Site photos
Appendix C: Ecological report
Appendix D: Heritage impact assessment report
Appendix E: Hydro-geological report
Appendix F: Environmental Management Programme
Appendix G: I&AP and stakeholder correspondence :

- List of I&APs
- Issues Trail
- Copies of I&AP correspondence

Appendix H: Notice of first public comment period

- Photographs of site notices
- Newspaper advertisement
- Proof of notices faxed / e-mailed / delivered to stakeholders

Appendix I: Notice of availability of draft rectification report for public comment
Appendix J: Focus Group Meeting with traditional authority
Appendix K: Copy of application form and DEA's acknowledgement of receipt thereof

ACRONYMS AND ABBREVIATIONS:	
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPR	Environmental Management Programme
Ha	Hectare
KMLM	Kagisano-Molopo Local Municipality
I&AP	Interested and/or Affected Party
MAP	Mean Average Precipitation
NEMA	National Environmental Management Act (1998, as amended)
NWA	National Water Act (1998)
WML	Waste Management Licence
WUL	Water Use Licence
WULA	Water Use Licence Application

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1. INTRODUCTION

Polygon Environmental Planning has been appointed to conduct a Section 24G rectification application on behalf of the North-West Department of Economic Development, Environment, Conservation and Tourism (NW DEDECT) for the silk processing facility at the Ganyesa Wild Silk project on a part of the farm Ganyesa-A 1006-IN. The site is located on the outskirts of Ganyesa, approximately 70km north-west of Vryburg in the North-West Province. Construction of the factory has already been completed without prior environmental authorisation, hence the need for this application.

The applicant was under the impression that no environmental authorisation was required for the project, and therefore commenced with construction in July 2007. However, after construction was completed, it was brought to their attention that the project in fact required Environmental Authorisation (EA) in terms of the Environmental Impact Assessment (EIA) Regulations (2006) which were in place at the time of commencement of the activity. When it was found that EA had in fact been required, they approached Polygon to undertake the required rectification application.

2. PROJECT DESCRIPTION

2.1. Project overview

A small scale wild silk operation, registered as Wild Silk Africa, was implemented and managed as a pilot project in Ganyesa until 2005 by the Ganyesa Dikhwena Trust in association with the then Kagisano Local Municipality (KLM, now known as Kagisano-Molopo Local Municipality, or KMLM). Following the hiatus, the project is now proposed to be upscaled and commercialised to the benefit of the local community, both socially and economically.

The project entails a facility for the processing of cocoons of the indigenous African Silk Moth (*Gonometa postica*) into silk thread. It forms part of a government-funded initiative for job creation and poverty alleviation in areas of the North-West and Northern Cape Provinces. Community cooperatives are proposed to be trained in the collection / harvesting of empty cocoons in the veld after the moths have flown; the cooperatives will then sell the cocoons to the processing facility at Ganyesa (to which this application pertains) for processing into thread. The thread is then proposed to be sold to firms which will manufacture saleable items such as suits or duvet covers from the silk thread.

The facility at Ganyesa is proposed to eventually consist of the following (please refer to the indications of which components have already been constructed):

- Processing facility (factory) and administrative buildings / offices *(already constructed. Construction commenced in July 2007)*;
- Paved parking and access *(already constructed)*;
- Borehole *(already drilled, but not yet in use pending Water Use Licence)*;
- Electricity transformer *(already in place)*;
- Onsite wastewater evaporation ponds *(not yet commenced with, pending Waste Management Licence and Water Use Licence)*.

2.2. Project description

The project operations will entail the processing of approximately 15 tons per year of African Silk Moth cocoons harvested in the wild, to obtain silk thread from which saleable products can be manufactured. It is anticipated that the project will first operate at a much smaller scale, and gradually upscale to a maximum of 15 tons of cocoons per year, depending on the viability of the project and the sustainable availability of cocoons. A three-year study will be undertaken as part of the bio-prospecting application to determine the optimum volume of cocoons that can be harvested without significantly adverse effects on the African Silk Moth population.

Following below is an overview of the individual processes that will comprise the agro-industrial processing of the cocoons for commercial purposes at Ganyesa.

a) Cleaning

Wild silk cocoons can contain debris and require cleaning prior to degumming. The end of the cocoon from which the moth has emerged will be cut open manually to remove the debris.

b) De-gumming and washing

Wild silk cocoons contain a considerable amount of gum (sericin) which hinders the subsequent mechanical processing of spun silk. The gum must therefore be removed before processing can begin and this is done by boiling the cocoons. Proper drainage is necessary to ensure that the waste water resulting from the degumming and washing processes is contained and treated. 60% of the wastewater from the washing / rinsing process will be disposed of into the proposed wastewater evaporation ponds, whilst 40% will be stored in a tank for re-use (combined with clean water) in the next rinsing cycle.

c) Opening

The dried and degummed cocoons will be fed into a machine called a cocoon opener. This machine serves to open the tangled mass of fibre and remove foreign matter.

d) Cutting

The fibres of the untangled mass will then be passed through a machine to cut the fibre to a suitable length for mechanical processing. In this case the cut mean fibre length will be 45 mm. This machine converts the cut silk into slivers for further processing.

e) Gilling

Slivers from the cutting machine are uneven and full of disoriented fibres. During gilling, six to eight slivers will be fed simultaneously through the gilling machine and drawn out or attenuated (drafted) to six to eight times their length. The blending action evens out variations in the sliver, which is more even, but generally of the same linear density (thickness or mass / unit length) than the input slivers from the previous process. Gilling also has a parallelising (aligning) effect on the direction of the fibres.

f) Combing

The fibres of the slivers are of varying lengths. In order to obtain a more homogeneous fibre length distribution in the sliver, the short fibres and impurities will be removed during a process called combing.

The comber removes, as noil, the short fibre and neps (small knots of entangled fibres). This noil will be of a suitable length for processing with cotton in the short staple process at the CSIR's (Council for Scientific and Industrial Research's) facilities in Port Elizabeth.

Although municipal water is available for use at the Ganyesa project facilities, municipal water supply here is insufficient for sustainable functioning of processing operations. Water for purposes of operational use is proposed to be obtained primarily from an onsite borehole, and a WULA is currently underway to apply for authorisation from DWA for the abstraction of groundwater.

The site is currently not serviced by the local municipality in terms of solid waste collection. The KMLM has indicated that solid waste removal and disposal from the Ganyesa project site will be managed by the Dr Ruth S. Mompati District Municipality once a Memorandum of Understanding (MoU) between KMLM and the district municipality has been finalised. Should this not be finalised by the time the project becomes operational (assuming that all required authorisations are obtained), solid waste will be taken from the site to a disposal site by the authorisation holder.

3. SITE DESCRIPTION

3.1. Location

The project site is located on the southeastern outskirts of Ganyesa town, at S26° 37.498' and E024° 12.342', on part of the farm Ganyesa-A 1006-IN. The site forms part of the Kagisano-Molopo Local Municipality (KMLM) in the Dr Ruth S. Mompani District of the North-West Province

The project site covers a total area of approximately 1.5 ha in extent and is entirely fenced. A gate provides access to the site from the adjoining road, R378.

Figure 3.1: Site location (Google Earth imagery dated 2006, accessed September 2013).

3.2. Land Ownership

The site is located on state-owned communal land under the custodianship of the Tlou le Tau ba ga Lethlogile Traditional Authority. The Traditional Authority has given consent to the applicant for undertaking the project on this site.

3.3. Land Use and Zoning

Prior to establishment of the silk processing plant, the project site was vacant and undeveloped. The site forms part of a larger area which was previously used as agricultural fields, but where natural vegetation has regenerated to a large extent since the fields were abandoned. The site is currently zoned for industrial use.

4. PROJECT MOTIVATION

The project was initiated as a community project, with the aim of job creation, local economic development and socio-economic upliftment in the Ganyesa area and certain other communities in parts of the North-West and Northern Cape Provinces.

It is anticipated that benefits of the project will be felt mostly in the Ganyesa area, where the processing plant is situated, but that benefits will also be experienced in communities from which cocoon harvesting cooperatives will be recruited. The plant at Ganyesa is anticipated to employ a number of permanent staff, and these employees will have more disposable income, a large proportion of which is expected to be spent locally on goods and services to the benefit of local businesses. The local economy is therefore anticipated to benefit from the creation of these job opportunities.

In the communities from which harvesters will be recruited, seasonal jobs will be created, which in turn is expected to be economically advantageous for those communities as the harvesters will likely spend much of their income at local businesses.

The project is furthermore anticipated to transfer skills to the workers involved in the project. These skills may in future increase their employability and earning potential in this sector.

5. LEGISLATIVE FRAMEWORK

The following legislation, policies and guidelines have been taken into account for the Ganyesa Wild Silk Project. Some legislation applies directly to the processing plant and this Section 24G rectification application, while some applies to other aspects of the larger project.

TITLE OF LEGISLATION, POLICY OR GUIDELINE:	ADMINISTERING AUTHORITY:	DATE:
The National Water Act (No 36 of 1998), Chapter4,	DWA	1998
The Constitution Act (No 108 of 1996)		1996
Conservation of Agricultural Resources Act (1983)	Department of Agriculture,	1983

	Forestry and Fisheries (DAFF)	
National Forests Act (No 84 of 1998)	DAFF	1998
Fencing Act (No 31 of 1963)		1963
North West Nature Conservation Ordinance (Notice 116 of 2009)	NW DEDECT	2009
National Environmental Management Act (Act No 107 of 1998) and regulations (2010)	NW DEDECT or DEA	1998 & 2010
National Environmental Management: Air Quality Act (No 39 of 2004)	DEA	2004
National Environmental Management: Biodiversity Act (No 10 of 2004)	NW DEDECT and/or DEA	2004
National Environmental Management: Waste Act (No 59 of 2008)	NW DEDECT or DEA (in this case DEA)	2008
National Heritage Resources Act (No 25 of 1999)	South African Heritage Resources Agency (SAHRA)	1999
Occupational Health and Safety Act (No 85 of 1993)		1993

POLICY/ GUIDELINES	ADMINISTERING AUTHORITY
Refuse (solid waste) and sanitary by-law	Kagisano-Molopo Local Municipality
By-law relating to unsightly and neglected buildings & premises	Kagisano-Molopo Local Municipality

The following application processes are required for components of the larger project. Along with this Section 24G rectification application for the unlawful construction of the processing facility, a WML application is also underway for the proposed wastewater evaporation ponds, and a WULA is underway for the proposed abstraction of groundwater and construction of wastewater evaporation ponds. Other applications which are required for harvesting and transportation of cocoons will only be undertaken at a later stage.

LEGISLATION	ADMINISTERING AUTHORITY	AUTHORISATION REQUIRED	STATUS
NEMA EIA Regulations (2006) *(Construction commenced in 2007, when the 2006 regulations were still applicable)*	DEA	Environmental authorisation for the silk processing plant	None, hence this S24G application
Nat. Env. Management: Waste Act (NEMWA, 2008)	DEA	Waste Management Licence for proposed wastewater evaporation ponds	Application in process
National Water Act (1998)	Dept. of Water Affairs	Water Use Licence for proposed establishment of wastewater evaporation ponds and abstraction of groundwater	Application in process
Nat. Env. Management: Biodiversity Act (NEMBA, 2004) & regulations (2008)	DEA	Bio-prospecting permit	Application to be undertaken in due course

Nat. Forests Act (1998)	DAFF	Forestry permit for possible impacts on protected trees during cocoon harvesting	Applications to be submitted in due course
Transvaal Nature Conservation Ordinance (No. 12 of 1983)	NW DEDECT	Import, export and collection permits for cocoons	Applications to be submitted in due course
Northern Cape Nature Conservation Act (No. 9 of 2009)	Northern Cape Dept. of Environment & Nature Conservation	Collection and export permits for cocoons	Applications to be submitted in due course

6. INVESTIGATION OF ALTERNATIVES

6.1. Project Alternatives

Consideration was initially given to the operation of a Devil's Claw project on the site. However, this was not deemed viable, and instead the silk project was selected as preferred option.

6.2. Site Alternatives

A pilot project was initially run in the industrial area of the town of Ganyesa, but the original site was too small to accommodate the project on a larger scale. When the decision was taken to upscale the project, the current site just outside Ganyesa was therefore selected as the preferred site.

6.3. Technology Alternatives

Technology alternatives were investigated in terms of water re-use, and a design which allows for recycling of 40% of the rinsing water was selected as preferred option. Technology alternatives were also investigated in terms of wastewater treatment, but that forms part of the Waste Management Licence (WML) application for the proposed wastewater evaporation ponds and is not discussed in this report.

6.4. Timing alternatives

As part of the bio-prospecting permit application, timing alternatives will be investigated in terms of the harvesting of the cocoons. However, this should not affect the operation of the processing plant to which this application pertains, as processing of the cocoons stockpiled during the harvesting season will continue year-round.

6.5. No-go Alternative

The 'no-go' alternative refers to the scenario in which the proposed activity does not take place and the site remains as it is.

If the no-go alternative is taken, the operational-phase impacts that can be anticipated to be associated with the facility will not come to pass; however, the construction-phase impacts have already been wrought as a result of the construction which has already been completed.

Impacts that can be expected to be experienced in case of the no-go alternative being selected include the following:

Table 6.2: Potential impacts that may be associated with the **no-go option**

POTENTIAL IMPACT	STATUS	EXTENT	MAGNITUDE	LIKELIHOOD	SIGNIFICANCE
Bio-physical aspects					
Rates and trends of soil erosion remains unchanged	Neutral	Local	Low-medium	Highly probable	Low-medium
No further habitat destruction	Neutral	Local	Low	Definite	High
No further contribution to spreading of alien vegetation	Neutral	Local	Low	Highly probable	Low
No disturbance or killing of fauna on or immediately around the site	Neutral	Local	Unknown	Highly probable	Medium
No added pressure on groundwater resources	Neutral	Local	Medium	Definite	Medium
No risk of groundwater contamination by wastewater	Neutral	Local	Unknown	Definite	Medium
Socio-economic aspects					
No visual impact (day- or night-time)	Neutral	Local	Very low	Definite	Very low
No job creation (permanent or seasonal)	Neutral	Local	Low	Highly probable	Low
No increase in noise levels	Neutral	Local	Low	Highly probable	Low
Traffic load remains unaffected by the project	Neutral	Local	Negligible	Definite	Low

7. IMPACT ASSESSMENT METHODOLOGY

Impacts – whether anticipated or already experienced – were scored on the following basis:

- **Status:**
  - *Positive* – the proposed project will have a positive impact in terms of the particular parameter;
  - *Negative* – the proposed project will have a negative impact in terms of the particular parameter;
  - *Neutral* – the proposed project will have neither a positive nor a negative impact in terms of the particular parameter.

- **Extent:**
  - *Site-bound* – the impact will be felt only on the site itself;
  - *Local* – the impact is to be felt on the site and in its immediate surroundings, up to a radius of 50km from the site);
  - *Sub-regional* – the impact is to be felt at a distance of up to 100km from the site;
  - *Regional* – the impact is to be felt in the Limpopo Province;
  - *National* – the impact is to be felt across provincial boundaries.

- **Duration:**
  Refers to the period of time over which impacts can be expected to be experienced.

  - *Short term* – 0 to 5 years;

- *Medium term* – more than 5 years, up to 15 years;
- *Long term* – more than 15 years;
- *Permanent* – the impact is irreversible.

- **Magnitude:**
  Refers to the intensity of the potential impact, if it is experienced.

  - *Negligible* – the impact will barely be felt, if at all. No mitigation required;
  - *Low* – the parameter will only be affected to a small extent by the proposed project. No mitigation required, but monitoring is recommended;
  - *Medium* – the parameter will be affected by the proposed project, but functions in terms of the parameter can still continue. Mitigation and monitoring required;
  - *High* – functioning in terms of the parameter will be significantly affected by the impact. Extensive mitigation and long-term monitoring required.

- **Likelihood:**
  - *Improbable* – it is unlikely that the impact will be experienced;
  - *Possible* – the impact may be experienced. Monitoring required; mitigation may also be required based on the type of impact and its significance;
  - *Highly probable* – the impact will most likely be experienced. Monitoring and mitigation required based on the type of impact and its significance in order to reduce the probability of the impact occurring and/or to reduce the magnitude of the impact;
  - *Definite* – the impact will be experienced or has already been experienced. Monitoring and mitigation required based on the type of impact and its significance in order to reduce the probability of the impact occurring and/or to reduce the magnitude of the impact.

- **Significance:**
  Significance is based on a consolidation of the anticipated extent, duration, magnitude and likelihood of the potential impact.

  - *Negligible* – The impact will barely be felt, if at all. No mitigation required;
  - *Low* – The parameter will only be affected to a small extent by the proposed project. No mitigation required, but monitoring is recommended;
  - *Medium* – The parameter will be affected by the proposed project, but functions in terms of the parameter can still continue. Mitigation and monitoring required;
  - *High* – Functioning in terms of the parameter will be significantly affected by the impact. Extensive mitigation and long-term monitoring required.

8. RECEIVING ENVIRONMENT: BIOPHYSICAL ASPECTS

8.1. Climate

8.1.1. *Status quo*

The site is located in a summer rainfall area with very dry winters and a Mean Annual Precipitation (MAP) of 300 - 400 mm. The mean annual rainfall measured at the Armoedsvlakte weather station near Vryburg

is 455 mm. The total annual rainfall may range from 200 mm to 788 mm during dry and wet years respectively, indicating a high variation in the annual rainfall and therefore a rainfall scenario that is highly unpredictable. The rainy season is predominantly from November to April (summer) when 85% of the annual rainfall is measured. The wettest month is January and the driest months are from June to August, when on average less than 10 mm of rain is recorded. The maximum rainfall measured over a 24 hour period at Armoedsvlakte was 129 mm in the month of January. The highest monthly rainfall recorded was 265 mm, also measured in January (EkoTrust, 2012).

The mean annual potential evaporation is 2 825 mm, while the mean annual soil moisture stress is 83% (Mucina & Rutherford, 2006, in EkoTrust, 2012).

The mean annual temperature for the Armoedsvlakte weather station is 17.9°C. The extreme maximum and minimum temperatures measured over a 65 year period were 41.8°C and -9.3°C while the mean daily maximum for January (summer) at Armoedsvlakte is 31.9°C and 19.9°C for July (winter). The mean daily minimum for January is 16.6°C and for July it is 0.1°C. Frost may occur from April to October (EkoTrust, 2012).

8.1.2. *Impacts*

The project is not anticipated to impact on climate. Climate may indirectly impact upon the project by affecting the availability of cocoons; however, current scientific knowledge is too limited to draw conclusions on the causal relationship between weather and outbreaks of cocoons. Further studies have been proposed to investigate this relationship.

Table 8.1: Potential impacts in terms of climate

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Increased soil erosion after rainfall events	Negative	Local	Long term	Low-medium	Highly probable	Low-Medium
Fluctuation in cocoon availability, possibly due to fluctuations in climatic parameters	Causal relationship unknown. Further scientific investigation required, which will be done as part of the bio-prospecting application.					

8.2. Topography, Soils and Geology

8.2.1. *Topography*

The site is located southeast of the Ganyesa village; it is characterized by plains to sometimes slightly undulating plains.

8.2.2. *Soils*

The project area falls within the Gordonia Formation, which consists of Aeolian sand containing rounded quartz grains with a red colour due to hematite staining (Partridge T.C. et al, 2006). It attains a maximum

thickness of 30m, mostly consisting of red-yellow apedal freely-drained soils with high base status and less than 15% clay content.

8.2.3. *Geology*

The project area is overlain by Kalahari Group sediments. The group is an assemblage of sedimentary rocks and aeolian sands.

The Kalahari group is divided into four main formations, the Wessels Formation, Budin Formation, the Eaden Formation and the Gordonia Formation. On the eastern margin of the sedimentary group it overlays the Ventersdorp Super Group, and extends all the way to the Namibian border on the west.

The underlying geology below the Kalahari sediments cannot be conclusively determined due to the Kalahari cover. The Geological map, Vryburg 2624, indicates that there is undifferentiated granite, gneiss migmatite, schist and amphibolites which are located below these sediments. Some outcrops of granite occur to the west of the site.

More information is contained in the hydro-geological report under Appendix E attached to this report.

8.2.4. *Potential impacts*

The project will not impact upon, nor be impacted by, the topography or geology of the site. Soil is anticipated to play a role in soil erosion.

Table 8.3: Potential impacts in terms of topography, soils, and geology

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Increased soil erosion	Negative	Local	Long term	Low-Medium	Highly probable	Low-Medium

8.3. Hydrology

8.3.1. *Status quo: surface hydrology*

No drainage lines exist on site, and the terrain slopes slightly to the south. The nearest drainage line – a non-perennial tributary of the Ganyesa River – is at its closest point situated approximately 450m to the south of the site. It is located south of the R378 road and flows roughly from south-east to north-west towards the town of Ganyesa.

A first order tributary of the Ganyesalaagte River is located about 3 kilometers south west of the Ganyesa Wild Silk Project and flows generally in a north westerly direction into confluence with the Ganyesalaagte River. This river flows further downstream to the confluence with Tlakgamenglaate River that flows in a generally northerly direction north of Ganyesa towards the Botswana boarder with South Africa.

The river system is non-perennial with its flow being heavily influenced by precipitation during the wet season. It flows through the sedimentary layers of the Kalahari group, exposing little of the underlying geology.

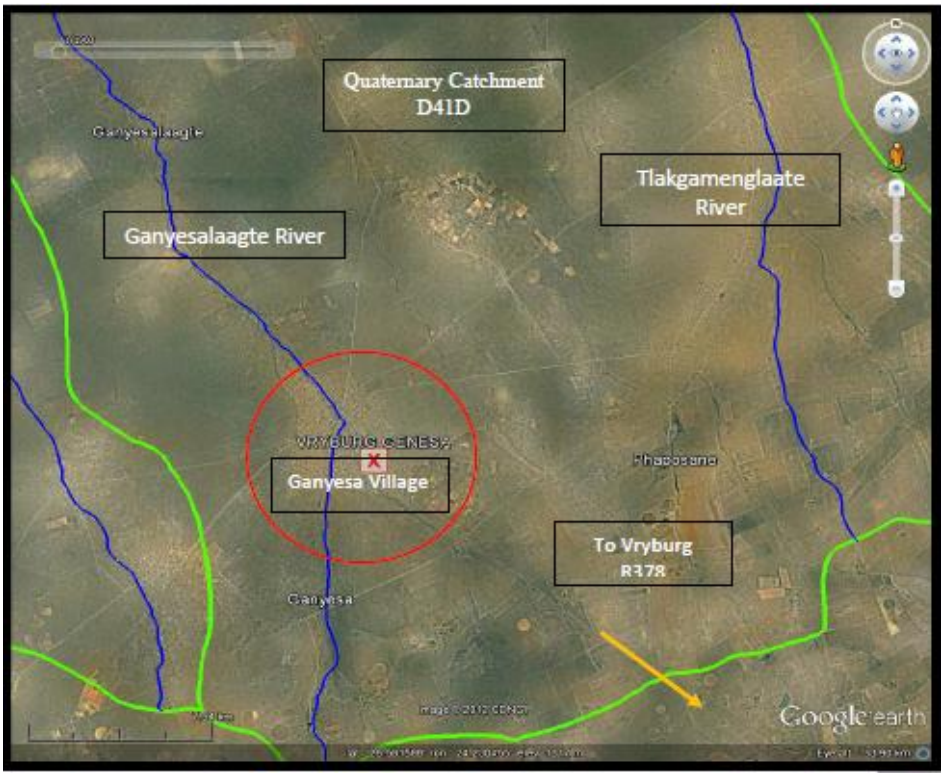
8.3.2. *Status quo: hydro-geology*

The project area lies in Quaternary Catchment D41D. A summary of the main hydrological statistics (GRA II results) for this catchment are as follows:

- Static water level (SWL) – 36.33 m bgl
- Mean annual precipitation (MAP) – 380 mm
- Recharge – 7.8mm
- Weathered aquifer thickness – 110.02 m
- Fractured aquifer thickness – 206.92 m

These statistics suggest that the weathered zone is well developed in the catchment. However, recharge is low and aquifers are expected to replenish during the rainy season. Statistics also suggest that surface water is limited in the catchment, and that boreholes can serve as a sustainable option for the Ganyesa Wild Silk Project water supply, provided water is used efficiently.

Figure 8.1: Sub-regional surface hydrology (WSM Leshika, 2012)



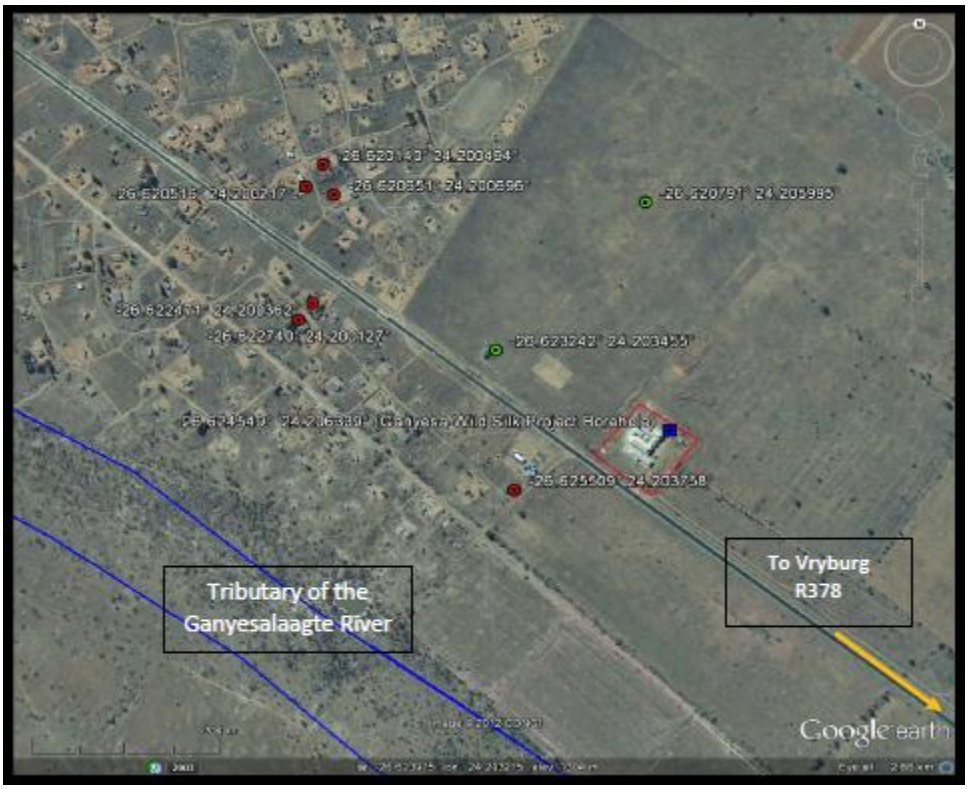
8.3.3. *Borehole census*

Eight boreholes were identified in a one kilometre radius, the majority of which (5) were not directly accessible due to the tops being sealed with cement or the owners of the properties not being available at the time of the census.

Adjacent to the Ganyesa Wild Silk Project is a farm which produces *Harpagophytum* ("Devils claw"), which has a borehole on the property which is not functional and has been sealed. They have plans to drill a new borehole in the location indicated on the borehole-census table.

A lodge is located across the road from the silk processing facility, with abstraction rates from their borehole varying depending on the number of guests in the lodge at the time. The Static Water Level in the borehole was 14 m at the time of the borehole census.

Figure 8.2: Location of boreholes identified during the borehole census (WSM Leshika, 2012)



8.3.4. *Pumping recommendations*

The hydro-geologist made the following recommendations with regards to water abstraction from the borehole onsite:

Borehole Depth	53.6
Internal Diameter	165mm
Static Water Level	17 m (current level ~ 27/05/2012)
Recommended Pumping Rate	1 l/sec @ 8 hours / day
Pump Depth Setting	50m below collar
Abstraction per day	28.8 Kl
Permissible Drawdown	23m (27 m above pump)

The recommended pumping rate and abstraction should not be exceeded.

8.3.5. *Water quality*

Water samples were collected from several boreholes, including the one onsite, and the properties of each borehole analyzed individually. The focus was on properties that are important with respect to the potability of the water and any treatment requirements that may be necessary. The inorganic chemistry data (macro and trace elements) is presented with reference to the Water Quality Threshold (WQT) according to DWAF-SA Water Quality Guidelines for Domestic Use and Industrial Water Use Category two activities.

The parameters were selected due to the type of activities undertaken at the project namely the degumming process and the use of boilers. Water samples from the effluent water produced from the factory were also analyzed and discussed.

Borehole: Ganyesa Wild Silk Project (-26.624549°, 24.206339°)

Parameter	**Value**	**Class**
• pH	7.8	Class 0
• Electrical conductivity	101 mS/m	Class 1
• Total Dissolved Solids (TDS)	624	Class 1
• Sulphate	30 mg/l	Class 0
• Chloride	109mg/l	Class 1
• Nitrate	16 mg/l	Class 2
• Fluoride	0.4mg/l	Class 0
• Total hardness as $CaCO_3$	318.92 mg/l	Class 2

The water sample is hard and will impart a “brak” taste to first time users. Scale development is also expected on heating elements, geysers and metal fittings. Elevated nitrates of 16mg/l has a Class 2 classification; the water from this borehole has an overall Class 2 classification, according to DWA Standards, Quality of Domestic Water Supplies.

From the DWA-SA Water Quality Guidelines for Industrial Use Category Two activities, the water has the following potentially problematic properties:

a) Total Alkalinity of 284 mg/l is considered to be marginal. The result is that there may be moderate to significant damage to the boiler and associated equipment due to scaling.
b) Chloride of 109 mg/l can lead to moderate damage of metallic equipment due to corrosion, particularly if pH is low and temperature is high.
c) Total Dissolved Solids of 612 mg/l and Electrical Conductivity of 101 mS/m may have the result of moderate levels of damage due to corrosion, scaling and fouling.
d) Total hardness as $CaCO_3$ is, at 318.92 mg/l, marginal and considered to cause a significant to moderate risk of damage due to scaling.

Table 8.4: Ganyesa onsite borehole water quality parameters compared with industrial water quality thresholds for Category 2 processes

Industrial Water Quality Threshold for Category 2 Processes						Sample Id
Chemical Species in (mg/l unless otherwise specified)	Target Water Quality Range					Ganyesa Wild Silk
Total Alkalinity Range	0-120	120-250	250-600	>600		284
Chemical Oxygen Demand	0-15	15-40	40-70	>70		
Chloride	0-40	40-80	80-200	>200		109
Iron	0.0-0.2	0.2-0.5	0.5-2.0	>20		0.257
Manganese	0.0-0.1	0.1-0.5	0.5-2.0	>2.0		<0.025
pH	<5.0	5.0-6.5	6.5-8.0	8.0-10.0	>10.0	7.8
Sulphate	0-80	80-150	150-250	>250		30
Suspended Solids	0-5	15-5	15-40	>40		
Total Dissolved Solids	0-200	200-300	350-800	>800		612
EC (mS/m)	0-30	30-50	50-120	>120		101
Total Hardness	0-100	100-200	200-500	>500		318.92

The results of the water chemistry analyses of the samples taken from the nearby boreholes at the Devil's Claw project and lodge are contained in the attached hydro-geological report, but are not included here as water is not proposed to be abstracted from them for use in the project. The water from both these boreholes is also categorised as Class 2, with the same potential problems as the water from the onsite borehole at the project site.

8.3.6. *Conclusion and recommendations*

According to the chemical water quality analysis it can be understood that the process water derived from the borehole on the property may have certain undesirable effects due to its inherent nature, such as the scaling of elements in the boilers, reduction of effectiveness of solvent chemicals used in the degumming process. This chemical nature is not only limited to the borehole on the Ganyesa Wild Silk property but can be understood as the basic chemical characteristics of the entire groundwater aquifer within a one kilometer radius of the Ganyesa Wild Silk Project, as demonstrated in the sampled boreholes.

From an environmental impact perspective, the waste water management systems which have been proposed [assessed in more detail in the Waste Management Licence application] would be sufficient in insuring that the ground water resources of the area are not disturbed by the highly saline brine produced by the project, as no effluent produced from the manufacturing processes should be reintroduced into the ground water system if the evaporation pans and auxiliary systems are used as specified.

The following recommendations are made in terms of hydro-geology:

- It is recommended that groundwater level responses be monitored on a biennial basis. This information can be submitted to hydro-geologists for evaluation and comment.

- Regular water sampling is also advised, at least on an annual basis. This is required to ensure continued chemical suitability of process water for the factory.
- No new boreholes should be drilled within a 200m radius of the Ganyesa Wild Silk Project.
- Borehole numbers should be allocated and the borehole registered with the relevant authorities or a water use license applied for. [A Water Use Licence Application is currently underway.]
- The borehole can be pumped at 1 l/sec until water demand is satisfied, or 8 hours maximum per day, which will produce 28.8 Kl/day, which should be more than sufficient to meet the water requirements of the project.
- Pre-filtering of the process water is recommended to reduce the Total Dissolved Solids from the process water.
- Occasional descaling of boilers pipes and fittings is recommended to ensure that the marginal hardness of the process water does not reduce the equipments efficiency.
- A suitably licensed site must be identified for the disposal of the dry sludge insuring that the material will not re-enter the ground water system as point source contamination.

8.3.7. *Potential impacts*

Groundwater abstraction for use in the silk processing facility is likely to affect groundwater availability for other downslope groundwater users and for the natural environment (ecological purposes).

Wastewater generated through the silk processing poses a risk of groundwater contamination in case of spillage or leakage.

Table 8.4: Potential impacts in terms of **hydrology**

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Increased pressure on groundwater resource	Negative	Sub-regional	Long term	Medium	Definite	Medium
Risk of groundwater contamination by wastewater	Negative	Sub-regional	Long term	Unknown	Possible	Medium

8.4. Vegetation

An ecological study was undertaken by Dr Noel van Rooyen of EkoTrust. The study consisted of a desktop-level study, followed by field-based survey. A list of the plant species currently on site was compiled and a superficial survey of plant species outside the fenced site was also undertaken. For the full report, please refer to Appendix C.

8.4.1. *Status quo*

The site falls in the Mafikeng Bushveld, which has a conservation status of “vulnerable”. The site is situated on old cultivated fields that were abandoned some time ago. This secondary habitat was then further disturbed / degraded during the construction of the silk processing facility.

The woody species occurring on site are small individuals (mostly <1 m in height) of *Acacia erioloba, Acacia tortlis, Acacia hebeclada, Diospyros lycioides* and *Dichrostachys cinerea*. The most prominent grass species include *Digitaria eriantha, Eragrostis trichophora, Schmidtia kalahariensis,Urochl oa panicoides, Stipagrostis uniplumis, Pogonarthria squarrosa and Cynodon dactylon.* The herbaceous layer is well developed and dominated by forbs such as *Nidorella resedifolia, Felicia muricata, Selago dinteri, Indigofera daleoides* and *Hermannia tomentosa.*

No Schedule 11 or 12 plant species in terms of the North-West Nature Conservation Ordinance (Ordinance No. 12 of 1983) were recorded on site. Furthermore, none of the plant species recorded on site are listed in the National Environmental Management: Biodiversity Act (NEMBA) lists of critically endangered, endangered or vulnerable species (Schedule B1). However, 7 specimens of *Harpagophytum procumbens* (Devil's Claw) were found on the boundary but outside the fenced site. The population status of *Acacia erioloba* (Camel Thorn), specimens of which were found onsite, is considered as "Declining" according to the National Red List of Plants 2009 (Raimondo *et al*. 2009). All other plant species recorded on site are considered as 'Least Concern'.

According to the International Conservation Union (IUCN) list of threatened plant species for the North-West province, none of the plant species on site have an IUCN classification. None of the plant species recorded on site have a Convention on the International Trade in Endangered Species (CITES) classification. None of the nonsucculent or succulent endemic plant species of the Griqualand West Centre of Endemism were recorded on site. None of the southern Kalahari endemic plant species were found on site.

Acacia erioloba is a nationally protected species (National Forest Act, Act No. 84 of 1998) that was recorded on site although the individuals were mostly small shrubs of less than 1m in height that coppiced after the earthworks/site clearing took place.

The vegetation outside the facility is characterized by scattered tall trees of *Acacia erioloba,* the shrubs *Acacia hebeclada and Grewia flava,* and with *Digitaria eriantha* the dominant grass species. The protected *Harpagophytum procumbens* was found next to the fence on the outside on the eastern and western side of the site. This may indicate that this species was also present on the site before the earthworks for the buildings commenced.

Several plant species with medicinal value occur in the area.

A number of alien invasive plant species occur on the site and in the general area.

8.4.2. *Potential impacts*

Small-scale habitat destruction and fragmentation has already occurred through the establishment of the processing facility and fencing of the site. These impacts will continue to be felt over the long term, but will not be exacerbated by putting the facility into operation.

Human activity onsite and the establishment of the proposed wastewater evaporation ponds can be anticipated to further disturb the already disturbed vegetation onsite, which may promote the growth and spreading of alien vegetation which is already present onsite and in the area around the site, if such growth is not actively managed.

Table 8.5: Potential impacts in terms of **vegetation**

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Habitat destruction and fragmentation	Negative	Local	Long term	Low	Definite	High
Aiding the spread of alien vegetation	Negative	Local	Long term	Low	Highly probable	High

8.5. Fauna

8.5.1. *Status quo*

An ecological study was undertaken by Dr Noel van Rooyen of EkoTrust. The faunal component study consisted of a desktop study and a superficial field survey of mammals, birds, reptiles and amphibians that are likely to occur at the site. Species presence on site was mainly ascertained by means of direct or indirect sighting methods (animal, spoor, burrows, scats) whilst traversing the areas on foot. No fauna were seen on the property during the survey. Additional checklists of birds, butterflies, other insects and herpetofauna of the 2624 CA quarter degree grid were obtained from the SIBIS database of the South African National Biodiversity Institute (SANBI). Please refer to Appendix C of this report for the full ecological report.

Mammals

A total composition of approximately 64 mammal species is suggested for the Kalahari Thornveld complex, most of which fall within the small mammal category (Erasmus 1998; Anderson 2006). Please refer to Appendix C for a species list.

Based on Mills & Hes (1997), Friedmann & Daly (2004) and Skinner & Chimimba (2005), and the type of habitat on site, the habitat requirements of the species and personal observations during the field survey, no Red Data Book (RDB) species were recorded during the survey. The fact that the site is fenced with jackal-proof fence prevents the colonization of the site from outside. The habitat on site is in poor condition due to a very sparse grass and forb cover on the disturbed soils. The proximity of the site to the town of Ganyesa will also contribute to a sparse faunal diversity in the area surrounding the site. Small mammals such as the Cape ground squirrel (*Xerus inauris*), four-striped grass mouse (*Rhabdomys pumilio*) and yellow mongoose (*Cynictis penicillata*) may be able to enter the site. The deep sandy soils of the area are suitable for burrowing animals such as the aardvark, porcupine and the Cape ground squirrel. The aardvark (*Orycteropus afer*), previously listed as Vulnerable, is now listed as "Least Concern" (Friedmann & Daly, 2004).

No Schedule 2a "Specially Protected Game" in terms of the North-West Nature Conservation Ordinance (No. 12 of 1983) occur naturally in the region. The following mammal species from Schedule 2 – "Protected Game" may occur in the vicinity of the site: Aardvark, Aardwolf, Brown hyaena, Pangolin, South African hedgehog and Steenbok. The following types of "Ordinary Game" (Schedule 3) may occur in the area, though the fencing around the site would make it difficult for them to access the site itself: Grey duiker and Kudu and Scrub/savannah hare.

Schedule 4 “Protected Wild Animals” of the Ordinance includes the wild dog, cheetah, leopard, lion and African buffalo. However, these types of animals are absent from the general area surrounding the site.

Avifauna

In the Kalahari and surrounding areas a total of 332 bird species has been recorded (Anderson 1998, 2006). Of these, a total of 121 occur in sandveld, thornveld and shrubveld habitats. Mountain veld is also the habitat of 24 of the 121 bird species. The only bird species recorded on site and surroundings was the Southern Pale Chanting Goshawk (*Melierax canorus).*

All types of bird are protected excluding a number of doves, mousebirds, crows, bulbuls, Cape sparrow, weavers, red-billed quelea, red bishop and ostrich.

The following types of “Ordinary Game” (Schedule 3 of the North-West Nature Conservation Ordinance) may occur on site: Francolins, Helmeted guinea-fowl and Partridges.

Herpetofauna

An approximate total of 40 reptile and six amphibian species, none of which appear in the current Red Data book, may be encountered in the Kalahari Thornveld complex (Anderson 1998, 2006). However, no reptiles were recorded on site. The records of the Southern African Reptile Conservation Assessment (SARCA) revealed no records in the 2527 DB quarter degree grid.

All tortoise species enjoy protected status. Please refer to Appendix C for a list of tortoises that may occur in the area according to Branch 2008. None of these species are threatened, though.

There are no perennial water bodies on site. A terrestrial frog species that may occur in the area is the Bushveld rain frog (*Breviceps adspersus),* although the site is on its southern boundary of distribution (Carruthers 2001). Please refer to Appendix C for a list of frogs that occur mostly in wetlands with standing or slow-moving water, e.g. pans. Small pans occur in the region and these amphibians may occur in these habitats (Anderson 1998).

All species of reptile are classified as Schedule 2 “Protected Game” of the North-West Nature Conservation Ordinance (1983), **excluding** the water leguaan (*Varanus niloticus*), rock leguaan (*Varanus albigularis*) and all species of snake of the suborder Serpentes. The site does not provide suitable habitat for the water leguaan and rock leguaan which are listed in Schedule 5. Snakes may occur on site or move through the area.

Fishes

There are no **perennial** water bodies/rivers in the immediate vicinity of the site.

Scorpions

There are 93 scorpion species in South Africa with four species potentially occurring in the region (Leeming 2003). Please refer to Appendix C for a list of these.

8.5.2. *Impacts*

Increased human activity at the site may disturb small fauna on and around the site and may inhibit their coming to the site for shelter or foraging. The possibility also exists that workers at or visitors to the site may kill fauna onsite either for food or traditional medicine, or out of fear or superstition.

Table 8.6: Potential impacts in terms of **fauna**

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Disturbance of faunal activities due to increased human activity	Negative	Local	Long term	Low	Highly probable	Medium
Killing of fauna for food or traditional medicine, or out of fear or superstition	Negative	Local	Long term	Unknown	Possible	Low

9. RECEIVING ENVIRONMENT: SOCIO-ECONOMIC ASPECTS

9.1. Heritage

A Heritage Impact Assessment (HIA) was done by Dr J.A. van Schalkwyk to locate, identify, evaluate and document sites, objects and structures of cultural or heritage significance within the area. The study consisted of a desktop-level study followed by a site investigation.

9.1.1. *Status quo*

The HIA concluded that no elements of heritage importance occur within the study area. The Late Iron Age heritage site of Dithakong is located approximately 30km south-west of the project site.

9.1.2. Impacts

As no sites or objects of heritage-related significance were found onsite, no heritage-related impacts are anticipated to be associated with the project.

Should any previously undetected subterranean heritage remains however be found on site at any stage, this must be reported to the South African Heritage Resources Agency (SAHRA) and work onsite halted until given the go-ahead by SAHRA.

Table 9.1: Anticipated heritage-related impacts

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
None anticipated as no sites or	-	-	-	-	-	-

objects of heritage significance were detected during the HIA						

9.2. Socio-Economic Aspects

9.2.1. *Population*

The population of the KMLM consists of more women (53%) than men (47%) and the bulk of the population (52%) is aged 0–19, indicating a very young population which is poised for fast population growth. 43% of the population is in the economically active age bracket (20-64) and the remaining 5% are of pensionable age (65 and older) (information obtained from Kagisano Local Municipality's Integrated Development Plan 2005-2006).

Statistics SA commissioned a Community Survey of municipalities in 2007; the results were made public in 2008. According to the survey, there were 75 946 persons (forming part of 19 888 households) in the Kagisano LM in 2007. This showed an increase in the number of households but a decline in the number of persons between the 2001 census and the 2007 community survey.

9.2.2. *Income, employment and education*

Ganyesa is one of the poorest areas in the North-West Province (media statement by North-West premier, Ms Edna Molewa, November 2004). Illiteracy is high and approximately 54% of the working-age population is unemployed. Households have a large number of dependents, and males rely mostly on subsistence-level livestock farming whereas females depend largely on social grants or pensions for survival (Mampholo & Botha, 2004: "Impact of previously disadvantaged land-users on sustainable agricultural practices", published in SA Journal for Agricultural Extension, Vol. 33).

9.2.3. *Infrastructure and services*

According to the above-mentioned Stats SA community survey, most of the population use electricity for lighting, but only a minority use electricity for heating or cooking. 71% of the population use pit latrines, while 20% do not have access to any toilets. 77% have access to clean, piped water, though most of these use taps outside their yards.

9.2.4. *Impacts*

No construction-phase impacts will be experienced, as construction has already been completed.

Long-term socio-economic impacts during the operational phase may relate to the following:

- Visual impact of the buildings
- Possible littering on or around the site by employees and/or visitors
- Job creation and local economic development

Table 9.2: Potential social impacts

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Creation of permanent employment opportunities	Positive	Local	Long term	Low-medium	Definite	Low-medium
Indirect contribution to creation of seasonal job opportunities	Positive	Regional	Long term	Low	Highly probable	Low

9.3. Traffic and Access

9.3.1. *Status quo*

The site is accessed directly from the existing R378 (Vryburg-Ganyesa road) passing the property. No new access road is required. The R378 carries an intermediate intensity of traffic and is the main transport route linking Ganyesa with the larger city of Vryburg.

9.3.2. *Impacts*

No construction-phase impacts will be experienced, as construction has already been completed.

During the **operational phase** a small increase in traffic can be expected, as employees will commute to and from the site on a daily basis during the week, bakkies or trucks can be expected to deliver cocoons during the approximately 2-week annual harvesting period, and trucks will transport spun silk thread from the facility to customers or to facilities from which it will be shipped to customers.

Table 9.3: Potential traffic impacts

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Increased traffic to and from the site	Negative	Local	Long term	Low	Highly probable	Low

9.4. Visual Aspects

9.4.1. *Status quo*

The activity has a low visual impact, as the buildings that have been constructed are limited in extent (covering only a small surface area) and being single storey they are at human scale. Day-time visual impacts were mitigated by painting the buildings in fairly neutral colours and by leaving a border of vegetation around the buildings to “blend in” with the surrounding vegetation. The site is also kept neat and tidy. Night-time visual impacts may be experienced if lights in the buildings are left on during the night or if there is outdoor lighting (e.g. for security).

9.4.2. *Potential impacts*

The buildings will have a day-time visual impact; however, the impact is expected to be low due to the small scale of the buildings and the neutral colours in which they have been painted.

Night-time visual impacts will be related to lighting, particularly if there will be outdoor lighting. However, this can be easily mitigated through selection of appropriate types of lighting fixtures and switching off unnecessary lights.

Table 9.4: Potential visual impacts

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Day-time visual impact of the constructed buildings	Negative	Local	Long term	Very low	Definite	Low
Night-time visual impact of lighting	Negative	Local	Long term	Very low	Definite	Low

9.5. Noise and air quality

9.5.1. *Status quo*

The site is situated in an area where the ambient noise level is low, with sounds mostly associated with the voices of workers and the sound of motor vehicles travelling on the nearby R378, which is the main route between Vryburg and Ganyesa.

9.5.2. *Potential impacts*

No construction-phase impacts are anticipated, as construction has already been completed.

Minimal operational-phase noise impacts are expected. Impacts are anticipated to relate to vehicles travelling to and from the site (e.g. for deliveries, or workers commuting to and from the site), as well as machinery being operated inside the facility.

Table 9.5: Potential impacts in terms of noise and air quality

CONSTRUCTION PHASE						
Potential impact	**Status**	**Extent**	**Duration**	**Magnitude**	**Likelihood**	**Significance**
Not applicable - construction already completed	-	-	-	-	-	-
OPERATIONAL PHASE						
Increased day-time noise levels	Negative	Local	Long term	Low	Highly probable	Low

10. IMPACT STATEMENT

The following tables summarise the bio-physical and socio-economic environmental impacts that have already been caused by the commencement of construction at the site and which can still be anticipated to be caused during the rest of the construction phase as well as the operational phase. These tables are simply a summary of the impacts which are discussed in more detail in the preceding chapters.

Table 10.1: Anticipated risks or impacts during the operational phase of the processing facility

	POTENTIAL IMPACT	STATUS	EXTENT	DURATION	MAGNITUDE	LIKELIHOOD	SIGNIFICANCE
	Bio-physical aspects						
CLIMATE	Rain during the construction phase can cause soil erosion	Negative	Local	Long term	Low-Medium	Highly probable	Low-Medium
	Climate may indirectly impact on the availability of cocoons	Negative or positive	Causal relationship unknown. Further scientific research to be undertaken as part of the bio-prospecting application.				
TOPOGRA-PHY, SOIL, & GEOLOGY	Increased soil erosion due to increased proportion of hard surfaces onsite	Negative	Local	Long term	Low-Medium	Highly probable	Low-Medium
WATER	Increased pressure on groundwater resources and subsequent impacts on downslope groundwater users	Negative	Sub-regional	Long term	Medium	Definite	Medium
	Risk of groundwater contamination in case of spillage or leakage of wastewater	Negative	Sub-regional	Long term	Unknown	Possible	Medium
FAUNA & FLORA	Aiding the spread of alien vegetation through disturbance of the natural vegetation	Negative	Local	Long term	Low	Possible	High
	Habitat destruction and fragmentation	Negative	Local	Long term	Low	Definite	High
	Disturbance of faunal activities due to increased human activity	Negative	Local	Long term	Low	Highly probable	Medium
	Killing of fauna for food or traditional medicine, or out of fear or superstition	Negative	Local	Long term	Unknown	Possible	Low
	Socio-economic aspects						
SOCIO-ECONOMIC	Creation of permanent employment opportunities	Positive	Local	Long term	Low-medium	Definite	Low-medium
	Indirect contribution to creation of seasonal job opportunities	Positive	Regional	Long term	Low	Highly probable	Low
TRAFFIC	Increase in traffic to and from the site	Negative	Local	Long term	Low	Highly probable	Low
VISUAL	Visual impact of the constructed buildings (daytime) and lighting (night-time)	Negative	Local	Long term	Very low	Definite	Very low
NOISE	Increased day-time ambient noise levels	Negative	Local	Long term	Low	Highly probable	Low

11. PUBLIC PARTICIPATION

11.1. Public comment period

Public participation as part of the rectification application consisted of the provision of a 40-day public comment period from 1 February to 13 March 2013, during which stakeholders and the general public had the opportunity to submit to Polygon any comments, queries or concerns which they might have with regards to the project and/or the environmental rectification application process.

The comment period was advertised in a combination of English and Setswana by means of the following (please refer to proof of advertisement under Appendix H of this report):

- Newspaper advertisement published on 1 February 2013 in The Star;
- Site notices erected at the entrance to the site and at various points in the local community where it would be visible to a large number of people;
- Notices sent directly to identified stakeholders by means of fax, e-mail and/or post;
- Notification was read on the community bulletin of Motsweding FM;
- The Kagisano-Molopo Local Municipality also assisted with distributing notification to community members.

11.2. Stakeholder meetings

A focus group meeting (FGM) was held with the tribal council of the Tlou le Tau Traditional Authority on 18 February 2013 at the offices of the Tlou le Tau Traditional Authority in Ganyesa, and was attended by neighbouring landowners, ward councillors and members of ward committees. Although no environmental (bio-physical or socio-economic) concerns were raised at the meeting, the attendees requested that another meeting be held where representatives of the project proponent (NW DEDECT) and the implementing agent (the CSIR) would be present.

A second FGM with the Tlou le Tau traditional council (the headmen from all the villages under the traditional authority's jurisdiction) has been scheduled for 3 October 2013.

A public meeting has been scheduled for 3 October 2013. Any Interested and/or Affected Parties (I&APs) and members of the public are welcome to attend this meeting.

11.3. Comments received

Comments received during the first public comment period focused on socio-economic issues such as the number of jobs to be created and the potential wages. Please refer to Appendix G for the issues trail, a record of all comments raised and responses provided during the public participation period.

12. IMPACT MITIGATION AND MONITORING

The attached Environmental Management Programme (EMPR, attached as Appendix F of this report) contains impact mitigation measures which are to be implemented at the site henceforth as part further

construction activities as well as during the operational phase of the project (if authorised) and the decommissioning phase (if any).

13. MOTIVATION FOR PRE-EMPTIVE COMMENCEMENT OF CONSTRUCTION

The applicant was unaware of the need to obtain environmental authorisation for the processing facility's construction. As soon as they were made aware of the fact that the facility does, in fact, require environmental authorisation, unfortunately construction was already completed and Polygon was appointed to undertake a Section 24G rectification application. The applicant is taking all the necessary steps to ensure that the project is brought in line with relevant legislation.

14. CONCLUSIONS AND RECOMMENDATIONS

It is recommended that **rectification be granted** to the applicant, North-West Department of Economic Development, Environment, Conservation and Tourism (NW DEDECT), for the unlawful commencement of a listed activity in terms of the Environmental Impact Assessment Regulations (2010), on **condition** of the following:

- Payment of a fine as may be set by DEA (if any);
- Should any deviations from the current specifications and designs be contemplated, such changes must be communicated to DEA and it must be determined whether the changes would significantly alter the impacts that can be anticipated to be associated with the project;
- The impact mitigation measures contained in the attached EMPR (Appendix F) must be implemented in order to minimize and/or mitigate environmental impacts henceforth;
- A Water Use Licence must be obtained from DWA (a WULA is currently being undertaken);
- A Waste Management Licence (WML) must be obtained for the proposed wastewater evaporation ponds (a WML application is currently being undertaken);
- Conditions that may be set by DEA in terms of the environmental authorisation must be adhered to;
- Conditions that may be set by DWA in terms of the WULA must be adhered to (separate application);
- Conditions that may be set by DEA in terms of the WML for the wastewater evaporation ponds must be adhered to (separate application);
- Should any additional activities listed in terms of environmental legislation be planned, the appropriate application(s) for authorisation must be lodged with the relevant authority(-ies).

15. REFERENCES

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