Breede Valley Municipality

Proposed development to address food security and protect biodiversity

New red wine vineyard for export quality estate wines

Breede Valley, Western Cape, South Africa

Hi my name is Joe Carbon. I am a Second Life Avatar representing the Qarbon Qampus Virtual World. Today we will be doing a real world assessment for a development. My Role is that of a farmer from the Breede valley district and I am looking to build an experimental vineyard to produce internationally acclaimed wines in the district. The aim is to improve local involvement increasing financial stability and food security.
Qarbon Campus Experimental Vineyard
A radical new way of farming!

What is the Qarbon Campus Experimental Vineyard and why is it different?

A Bordeaux wine is any wine produced in the Bordeaux region of France and this is what I am to replicate by establishing a new red wine vineyard for the export market of quality estate wines.

There will be five new vineyards which will grow Cabernet sauvignon (2), Merlot (2) & Cabernet frank (1). The grapes will be used in the production of export quality estate wine in a blend named after port in south western France. Typical top-quality Châteaux blends are 70% Cabernet Sauvignon, 15% Cabernet Franc & 15% Merlot to which I wish to experiment around these estimates.

The geological foundation of the region is limestone, leading to a soil structure that is heavy in calcium and the site for the Breede Valley vineyard would need to replicate these conditions.
A potential property for the location of the Qarbon Campus Experimental vineyard has been identified in the Breede Valley. The Breede River Valley is in the Western Cape of South Africa, and is well known for its wine and fruit-producing farmlands. It is very wide and flat, with the Western side being very low (only around 80m above the sea-level).
**Purpose:** The vineyard will support local residents with opportunities for job security. The high quality product (using the export market) will provide a suitable income for these residents thus ensuring their ability to maintain their lifestyles and improve local food security.

**Goals:** My goal is to upgrade the means of living support to local residents in the poverty stricken areas. With the job opportunities in place, I aim to pass on a skill set to locals from which they can build themselves and improve their living situation, while simultaneously boosting the local economy.

**Reference Documents:** Poverty status from Breede Valleys Spatial Development Framework

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**Conservation Units:**
On the assessment site there is an endangered fynbos type of which needs to be conserved. Also the soil type needs to be considered if possible use for vineyard can be made.

Utilizing the poverty status data as well as conservation units, a balance may possibly be struck by maintaining the overall diversity of the fynbos type while ensuring suitable management when maintaining the vineyard over time.
Breede Valley Municipality

Profile

Description
Breede Valley Local Municipality is located within the Cape Winelands District Municipality (Boland District Municipality) in the Western Cape province. The most striking feature of the Breede Valley is its scenic beauty consisting of majestic mountains, fertile valleys, vineyards and vast plains, covered with indigenous semi-desert vegetation. Main economic services include agriculture, manufacturing and tourism.

General statistics
Area: 299,437.6ha
Total Population 2011: 92,251
Population density: 3.24/ha

Summary of Breede Valley Integrated Development Plan IDP

Relative to food security, the IDP looks to:

- Develop the rural community linking land use and agrarian reform as well as food security
- Promote tourism and economic development and reduce unemployment and poverty in the municipal area
- Establish vibrant equitable and sustainable rural communities with food security for all

Focussing on these goals, the establishment of a new vineyard provides an opportunity to support these development plans for the valley.
Breede Valley Municipality
Transformation and protection

Total area: 299 347.6ha

Landscape transformation
One fifth of the municipal area has been altered to a state where no natural habitat remains.

Protected areas
Formal land-based protected areas
12 reserves covering 110152ha (36.8%)
Breede Valley Municipality  
Vegetation types – Original Extent  

Main vegetation types (Top 5 of municipal area)
- Breede Alluvium Fynbos 11.82%
- Breede Alluvium Renosterveld 9.27%
- Hawequas Sandstone Fynbos 14.32%
- Matjiesfontein Shale Renosterveld 15.23%
- South Hex Sandstone Fynbos 8.36%

Other vegetation types (Remaining in municipal area)
- Boland Granite Fynbos 0.34%
- Breede Quartzite Fynbos 2.18%
- Breede Sand Fynbos 2.42%
- Breede Shale Fynbos 0.72%
- Breede Shale Renosterveld 5.64%
- Central Coastal Shale Band Vegetation 0.13%
- Elgin Shale Fynbos 0.41%
- Matjiesfontein Quartzite Fynbos 1.77%
- South Langeberg Sandstone Fynbos 1.98%
- South Sonderend Sandstone Fynbos 0.05%
- Western Altimontane Sandstone Fynbos 0.39%
- Western Coastal Shale Band Vegetation 0.69%
- Western Little Karoo 5.13%
Breede Valley Municipality
Nationally listed threatened ecosystems

Percentage of municipal area now covered by threatened ecosystem shown

**Critically Endangered (EC)**
- Elgin Shale Fynbos 0.37%
- Western Ruens Shale Renosterveld 0.04%

**Endangered (EN)**
- Breede Alluvium Fynbos 5.31%

**Vulnerable (VU)**
- Boland Granite Fynbos 0.3%
- Breede Alluvium Renosterveld 4.76%
- Breede Sand Fynbos 0.88%
- Hawequas Sandstone Fynbos 14.11%
Breede Valley Municipality
Nationally listed threatened ecosystems

Map showing the original extent of the ecosystems which are now threatened
Breede Valley District Conservation Plan Assessment
Assessment location and Conservation Plan

**Assessment location**

The map to the left shows the assessment area which was run for the identified potential location of the Qarbon Campus Experimental Vineyard in the Breede Valley.

**Assessment results**

The assessment report is a compilation of data of various spatial biodiversity data sets and planning production. These are:

1. National terrestrial or aquatic spatial data sets and protected area boundaries and

2. The most relevant Biodiversity Conservation Plan BCP for the municipality in which the assessment is located. In the case the the most relevant SCB is the Overberg District Conservation Plan.
Critically Endangered ecosystems present

Section 1.1 of the report lists one threatened ecosystems which occur with the assessment area. Although this information is extracted from the original extents of these ecosystems both the SCP results discussed below and examination of imagery confirm that natural vegetation may well exists within the area of the assessment. If this is the case it is critically endangered CR and the ecosystems in question are:

1. Breede Alluvium Fynbos FFa 2

Note the results for the National vegetation types section 1.2 confirms that the only vegetation types (ecosystems) which may occur is this one CR ecosystems.

Soils contract in value for farming

The soil classes encountered are probably associated with the one ecosystem. Further investigation into their properties revealed that

1. Imperfectly drained sandy soils: Soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime rare or absent in the landscape.

Note: There were no indigenous forest patches
Breede Valley District Conservation Plan Assessment
Rivers, wetlands and protected areas

**National Fresh Water Priority Areas (NFEPA)**

**Wetlands**

One wetland occurs in the analysis area (section 2.1.1), this wetland is natural with condition C where the percentage natural land cover 18% by Surveys and Mapping. This wetland has no FEPA.

**Rivers Units Sub-quaternary catchments**

*Note:* The analysis area showed no intersecting river units within the designated plot which has been allocated.

**Protected Areas (NBA 20011)**

*Note:* The analysis area had no intersection with any protected areas within the municipality.
Breede Valley Conservation Plan Assessment
CBAs and ESAs

In the Breede Valley Conservation Plan a lookup layer is provided which divides the area of the plan into units each of which gives biodiversity feature information responsible for the classification of the unit’s CBA map category CBA, ESA or PA. The analysis area intersected 203 such units (section 2). In the report each unit is listed separately rather than in a table due to the amount and complexity of information it contains.

**Critically Endangered ecosystems (CBAs)**

Most of the analysis area intersected with lookup layer units which were classified as Critical Biodiversity Areas 110 on natural or 60 degraded land and 30 no natural units in total. The biodiversity features responsible for this classification indicated potential occurrence of both endangered species and national threatened ecosystems. These units corresponds with the two critically endangered ecosystems which were listed above.

**Ecological Support Areas (ESAs)**

Note: No ecological support areas present in the assessment area

**Protected Areas (PAs)**

Note: No Protected Areas present in the assessment area
Recommendations:

The results generated from the assessment area report indicate a number of restrictive implications limiting the establishment of my experimental farm.

This is mainly due to the vines needing specific soil conditions in order to produce the correct components in the wines during the blending process. The necessary soil types for the production of Cabernet Sauvignon, Cabernet Franc & Merlot is nutrient rich, mineral sufficient soils primarily composed of calcium carbonate and high in chalk or limestone as well as fossilized shells.

The soil component on site as stated is Imperfectly drained sandy soils. Soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime rare or absent in the landscape which makes it difficult to cultivate suitable soil condition to support this endeavor.

The main recommendation would be to move site to another location where base conditions are more suitable for establishment. This shouldn’t be to difficult as the Breede valley has perfectly established vineyards in the area which are well known in the international scene.
JoeCarbon @Home