COMPLIANCE STATEMENT FOR DIEMERSFONTEIN MAST, WESTERN CAPE

PREPARED FOR

ENVIROAFRICA

SEPTEMBER 2024

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Digital Soils Africa

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BACKGROUND TO THE STUDY

Digital Soils Africa (Pty) LTD (DSA) were tasked on behalf of Enviro Africa, to undertake an Agricultural Compliance Statement for the Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014. As per GN960 of 2019, read with Section 24(5)(a) of the NEMA, an Environmental Screening Report (ESR) was generated for the application using the National Web-based Screening Tool. The ESR classifies the area as being of Very High sensitivity for the Agricultural theme. The Compliance Statement is reported according to the protocol for the specialist assessment and minimum report content requirements for the environmental impacts on agricultural resources (GN320 of 2020).

Proposed development of a 25 m high telecommunication mast and associated infrastructure on Farm No. 1756, Paarl Road, Western Cape. The proposed base station will have a total developmental size of approximately 106 $m^2$and will include a 25 m high Lattice Mast. The site will be enclosed by fencing for security reasons.

The study site is located 3.4km southeast of Wellington, Western Cape province, South Africa (Figure 1).

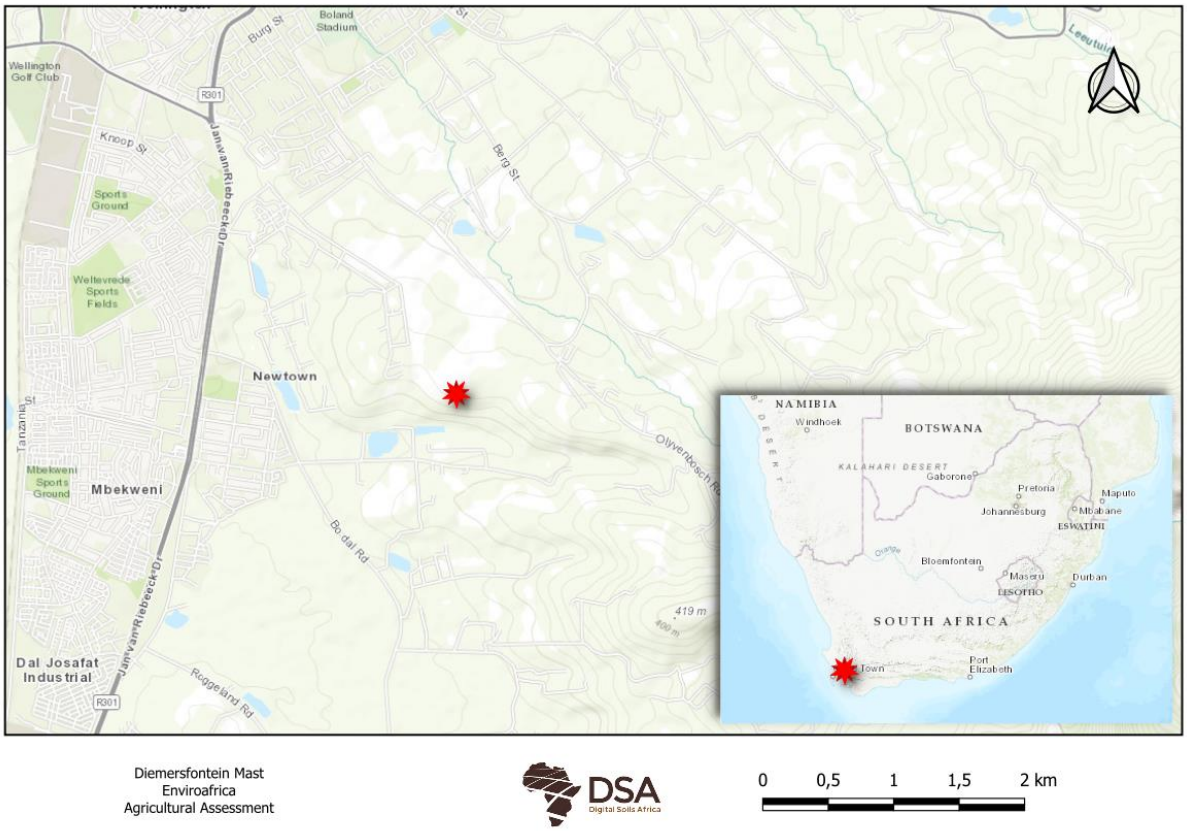

FIGURE 1: LOCATION OF THE STUDY AREA IN THE WESTERN CAPE PROVINCE.

ENVIRONMENTAL SCREENING TOOL

Agricultural sensitivity, as reported in the screening tool, is based upon the land use (SANLC, 2014) and land capability (Department of Agriculture, Forestry and Fisheries, 2017, also referred to as DAFF, 2017).

All cultivated land is considered a high sensitivity, while irrigation and unique crops, are considered very high sensitivity, irrespective of the land capability. The land use in the screening tool is based on the South African Nation Land Cover (SANLC, 2014). Meanwhile, there have been two more updated versions of the South African National Land Cover (2018 and 2020).

According to the Department of Agriculture, Forestry and Fisheries (2017), land capability is defined as the most intensive long-term use of land for purposes of rainfed farming determined by the interaction of climate, soil, and terrain. The following weight was given to each attribute when calculating the Land Capability:

Land capability = Climate (40%) + Terrain (30%) + Soil (30%)

According to the National Web based Environmental Screening Tool, the agricultural sensitivity is classified as very high agricultural sensitivity (Figure 2). The land capability (DAFF, 2017) classifies the soils as having a low land capability (Figure 3). There are cultivated crops on the site according to the screening tool (Figure 4).

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Very High	Viticulture;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low

FIGURE 2: RESULTS FROM THE ENVIRONMENTAL SCREENING TOOL.

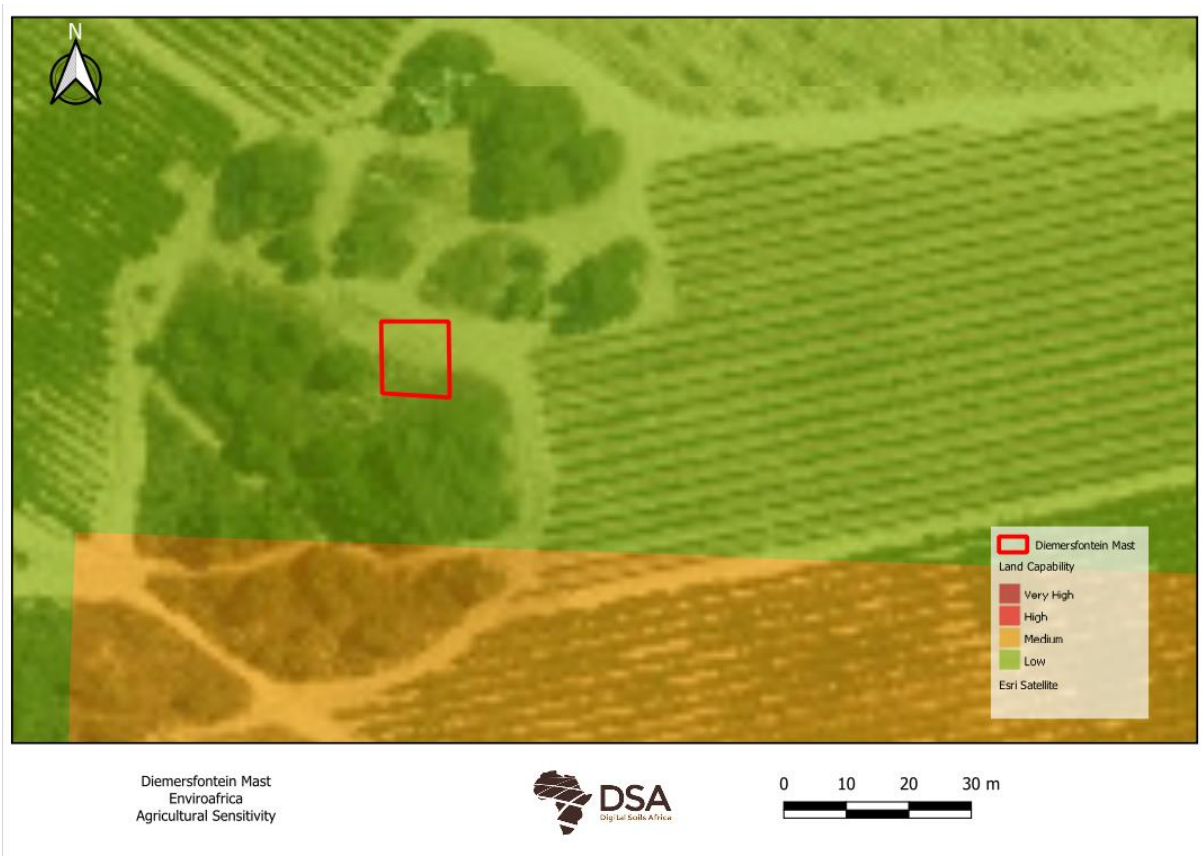

FIGURE 3: THE LAND CAPABILITY OF THE STUDY AS USED IN THE SCREENING TOOL.

FIGURE 4: THE FIELD CROP BOUNDARIES AS USED IN THE SCREENING TOOL.

Preservation and Development of Agricultural Land Framework Act (PD-ALF) is in the process of being published. The new statutory framework will replace the Subdivision of Agricultural Land Act, Act 70 of 1970.

Protected Agricultural Area, as in the draft framework, is defined as *"an agricultural land use zone, protected for purposes of food production and ensuring that high potential and best available agricultural land are protected against non-agricultural land uses in order to promote long-term agricultural production and food security."*

The study area is situated in a Protected Agricultural Area (Figure 5).

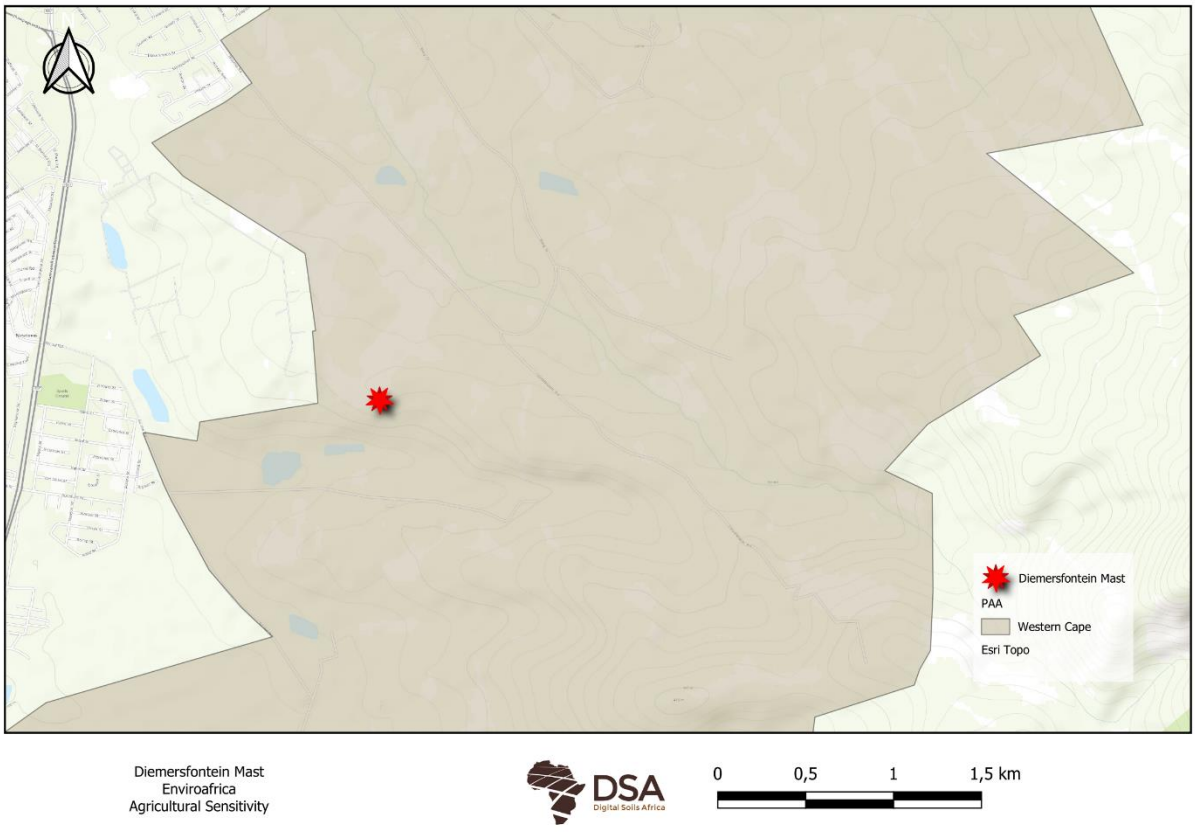

FIGURE 5: THE PROTECTED AGRICULTURAL AREAS FOR THE STUDY AREA.

As per the protocol, Terms of Reference applicable to an "Agricultural Compliance Statement" is as follows:

- The compliance statement must be prepared by a soil scientist or agricultural specialist registered with the SACNASP. (pg25)
- The compliance statement must:
- be applicable to the preferred site and proposed development footprint (pg5);

- confirm that the site is of “low” or “medium” sensitivity for agriculture(pg24);
- indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site (pg24).
- The compliance statement must contain, as a minimum, the following information:
- contact details and relevant experience as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the assessment including a curriculum vitae (pg25);
- a map showing the proposed development footprint (including supporting infrastructure) with a 50m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool (pg7);
- confirmation from the specialist that all reasonable measures have been taken through micro-siting to avoid or minimise fragmentation and disturbance of agricultural activities (pg24);
- a substantiated statement from the soil scientist or agricultural specialist on the acceptability, or not, of the proposed development and a recommendation on the approval, or not, of the proposed development (pg24);
- any conditions to which the statement is subjected (24);
- in the case of a linear activity, confirmation from the agricultural specialist or soil scientist, that in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase (not applicable).
- where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr (not applicable);
- and a description of the assumptions made and any uncertainties or gaps in knowledge or data (pg10).

ASSUMPTIONS AND GAPS

It is assumed that the data used in the desktop is correct, as no observations were made on site.

RESULTS

CLIMATE CAPABILITY

In Wellington, the climatic conditions are categorized as mild and moderate. There is more rainfall in the winter than in the summer in Wellington. The Köppen-Geiger climate classification is Csa. The mean temperature prevailing in the city of Wellington is recorded as 16.9 °C, according to statistical data. The yearly average precipitation is 821 mm. The site is in a Dry Sub-humid zone (Figure 6).

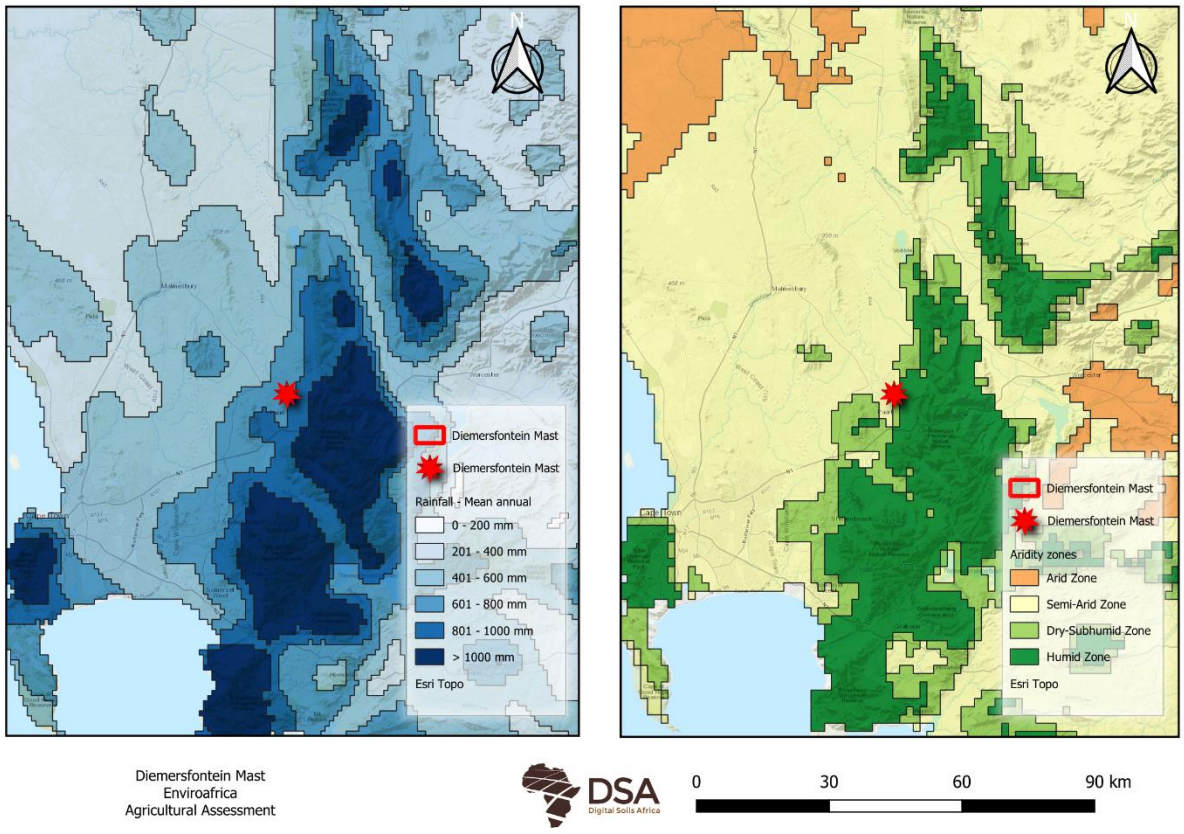

FIGURE 6: CLIMATE OF THE SITE AND THE SURROUNDING AREA (SCHULZE, 2007).

TABLE 1: CLIMATIC PROPERTIES OF WELLINGTON, WESTERN CAPE PROVINCE(CLIMATE-DATA.ORG).

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C	23.1 °C	23.2 °C	21.4 °C	18.1 °C	14.4 °C	11.2 °C	10.6 °C	11.1 °C	13 °C	16.3 °C	18.6 °C	21.5 °C
Min. Temperature °C	16.3 °C	16.6 °C	15.2 °C	12.3 °C	9.4 °C	6.2 °C	5.5 °C	6 °C	7.3 °C	10.1 °C	12.1 °C	14.9 °C
Max. Temperature °C	30.4 °C	30.6 °C	28.6 °C	24.7 °C	20.3 °C	16.8 °C	16.4 °C	16.6 °C	18.7 °C	22.6 °C	25.4 °C	28.5 °C
Precipitation mm	21	18	22	64	102	153	134	110	77	49	44	27
Humidity(%)	51%	52%	54%	59%	69%	75%	75%	77%	73%	64%	57%	52%
Rainy days (d)	3	2	3	5	6	8	7	8	6	5	5	4
avg. Sun hours (hours)	11.0	10.4	9.5	8.1	6.7	6.1	6.3	6.1	7.0	8.9	10.0	11.0

Climate capability is the highest weighted factor (40%) in the calculation of the Land capability (DAFF, 2017) which is used in the Screening Tool to determine the agricultural sensitivity. Soil capability (30%) and Terrain capability (30%) contribute the remaining considerations. The climate capability consists of 9 values, with 1 being the lowest value and 9 being the highest value (There is however no evaluation value of 1 & 2).

The Climate capability determined by the following factors:

- Moisture supply capacity (50%)
- Physiological capacity (20%)
- Climatic constraints (30%)

The climate capability according to the Department of Agriculture, Forestry and Fisheries, 2017, is a value of 6 (Figure 7). This is considered a moderate to high climate capability.

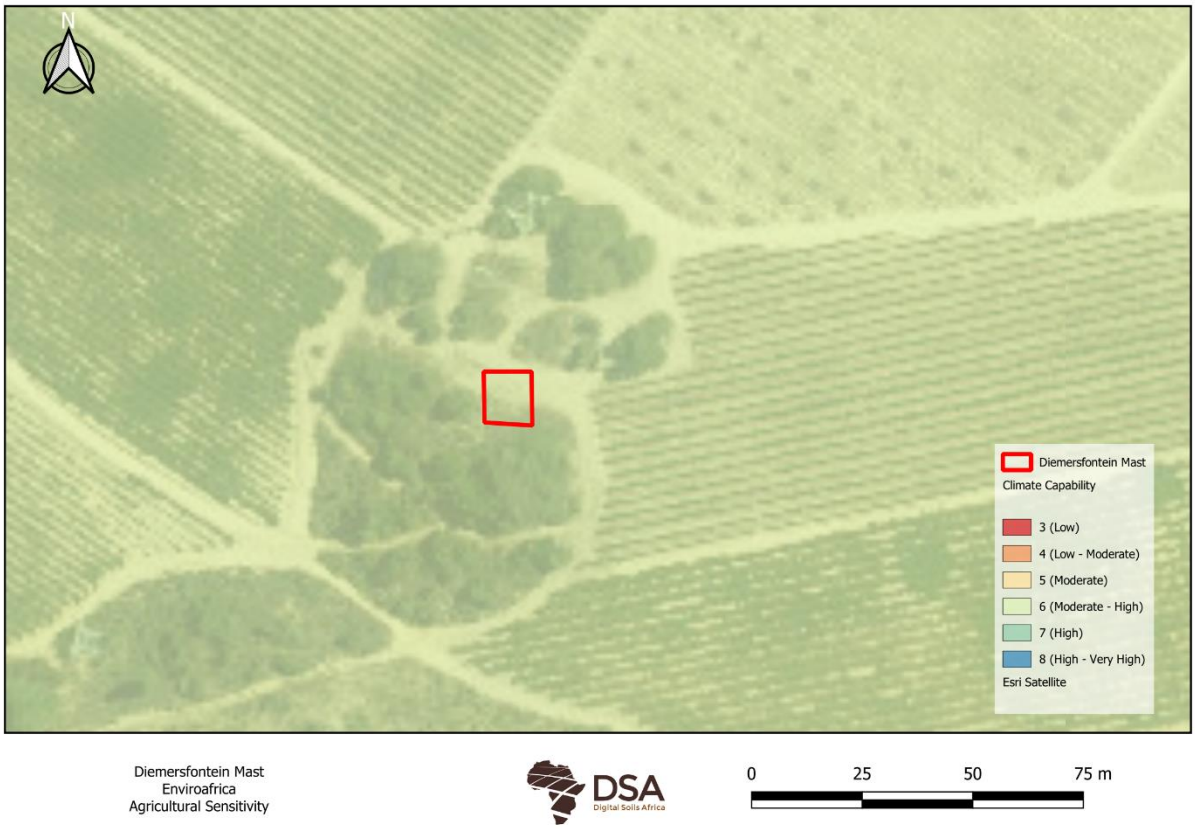

FIGURE 7: THE CLIMATE CAPABILITY OF THE SITE AND SURROUNDING AREA (DAFF, 2017).

SOIL

LANDTYPE

A land type is an area which can be demarcated at a scale of 1:250 000 with similar soil forming factors and therefore soil distribution patterns. A land type does therefore not represent uniform soil polygons, but rather information regarding the occurrence of different soils on different terrain units can be obtained from the land type inventory. Land type data was used in calculating the soil capability (DAFF, 2017), and therefore, indirectly used in the Screening tool for estimating the agricultural sensitivity.

The study area is comprised of the Fa land type (Land Type Survey Staff, 1972 – 2002) (Figure 8). Fa land types are comprised of shallow soils (Mispah & Glenrosa forms) predominate; little or no lime in landscape.

FIGURE 8: LAND TYPES FOUND IN THE STUDY AREA AND THE SURROUNDING AREA (LAND TYPE SURVEY STAFF, 1972 – 2002).

SOIL CAPABILITY

The Soil capability consists of 9 values, with 1 being the lowest value and 9 being the highest value. The main factors contributing to the Soil capability consist of:

- Plan available water (80%)
- Soil sensitivity (17%)
- Soil fertility (3%)

The soil capability according to the DAFF (2017), is a value of 5 (Moderate) (Figure 9). This is considered a moderate soil capability.

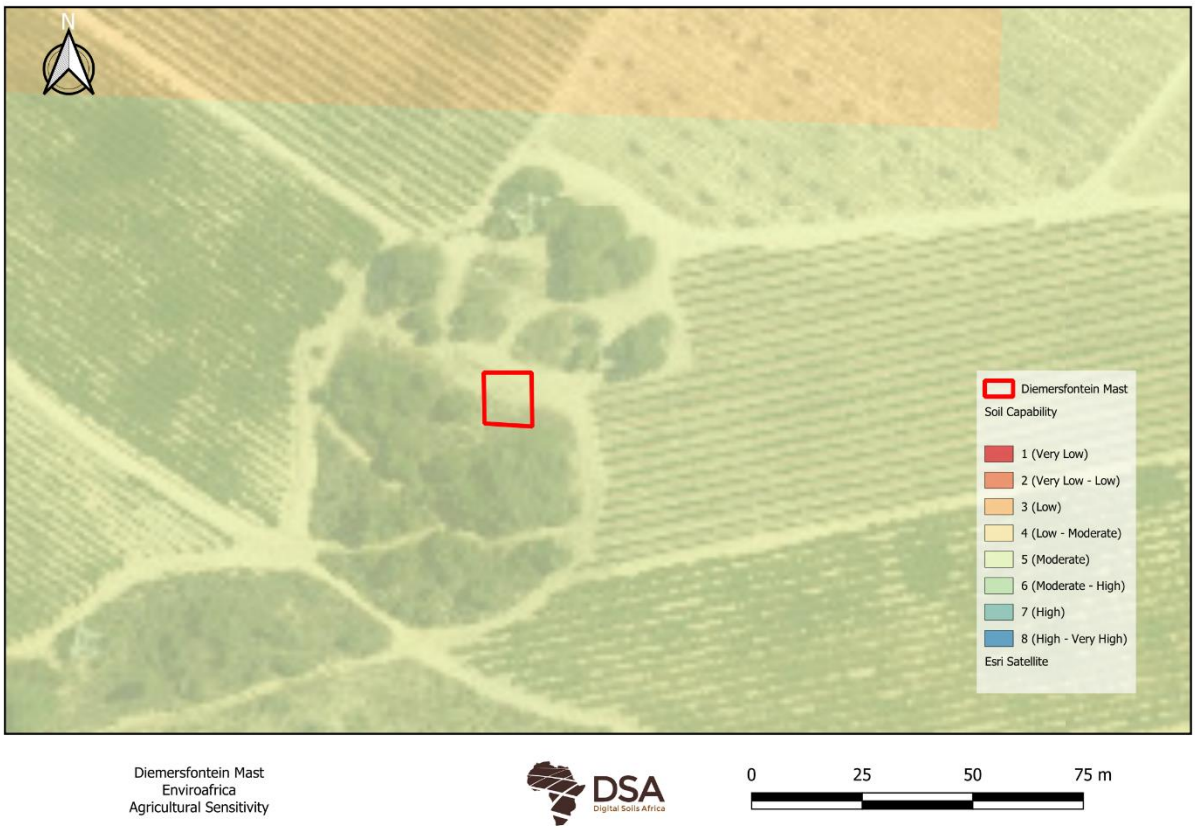

FIGURE 9: THE SOIL CAPABILITY OF THE SITE AND SURROUNDING AREA (DAFF, 2017).

TERRAIN CAPABILITY

Terrain plays an important role in a plants' physiological growth requirements, and from a sensitivity and accessibility perspective, Therefore, the two terrain modelling concerns included in the terrain capability modelling exercise were plant physiology and terrain sensitivity. The Terrain capability consists of 9 values, with 1 being the lowest value and 9 being the highest value.

The terrain capability according to the DAFF (2017), has a value 3 (Low) covering the entire study area (Figure 10). This is considered a low terrain capability.

FIGURE 10: THE TERRAIN CAPABILITY OF THE SITE AND SURROUNDING AREA (DAFF, 2017).

LAND CAPABILITY

The new Land capability (Department of Agriculture, Forestry and Fisheries, 2017) has fifteen classes, as opposed to the eight classes described by Schoeman et al. (2002). The data is usable on a scale of 1:50 000 – 1: 100 000, therefore, not suitable for farm scale recommendations. Classes 1 to 7 are of low land capability and only suitable for wilderness or grazing. Classes 8 to 15 are considered to have arable land capability with the potential for high yields increasing with the land capability class number.

TABLE 2: LAND CAPABILITY CLASS AND THE DESCRIPTION OF THE CLASS

Land Capability Class	Description	
1-2	Very Low	Not arable
3-4	Very Low to Low	
5	Low	
6-7	Low to Moderate	
8	Moderate	Arable
9-10	Moderate to High	
11	High	
12-13	High to Very High	
14-15	Very High	

The Land capability has values of 5 (Low), which is generally considered not arable (Figure 11).

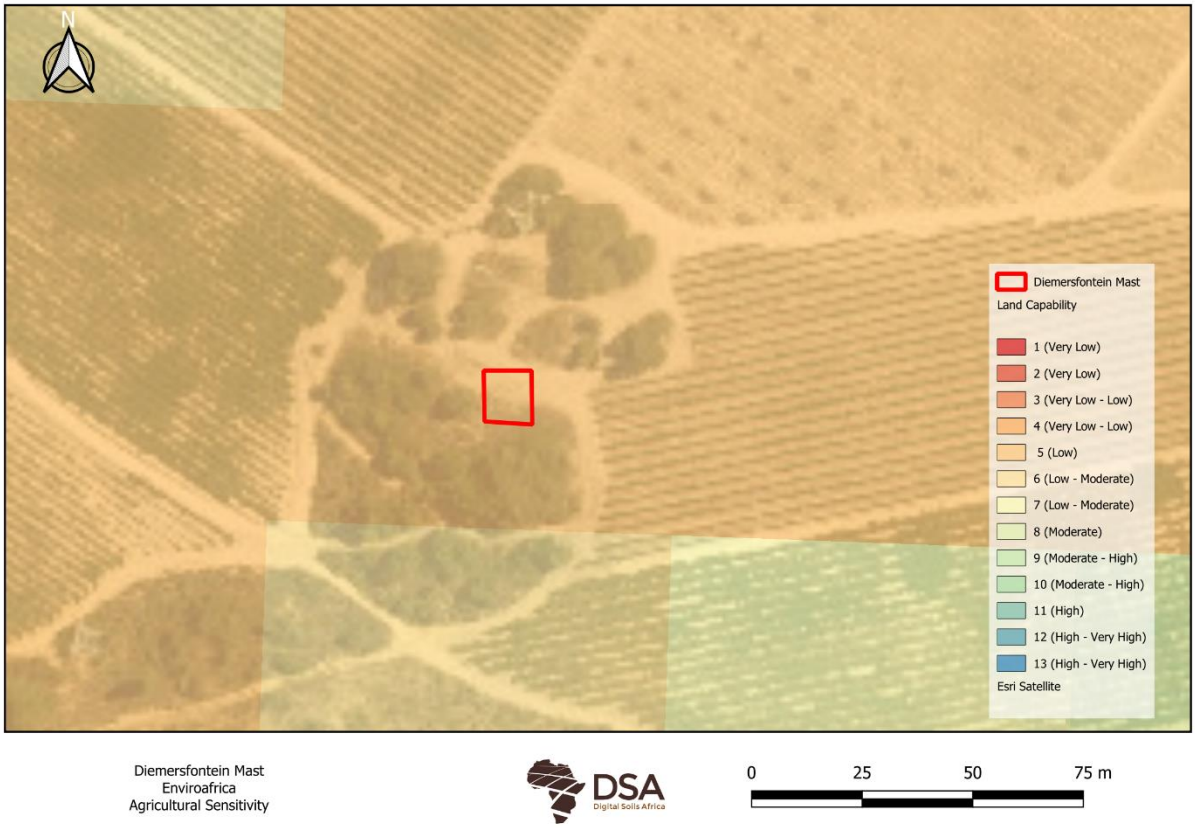

FIGURE 11: LAND CAPABILITY CLASS MAP OF THE STUDY AREA (DAFF, 2017).

GRAZING CAPACITY

The unit used in the grazing capacity is hectares per large stock unit (ha/LSU). The site has a extremely low grazing capacity of 108 ha/LSU (Figure 12). A homogeneous unit of vegetation expressed as the area of land required (in hectares) to maintain a single animal unit (LSU) over an extended number of years without deterioration to vegetation or soil. Where an LSU = An animal with a mass of 450 kg and which gains 0.5 kg per day on forage with a digestible energy of 55%. (Trollope et. Al., 1990).

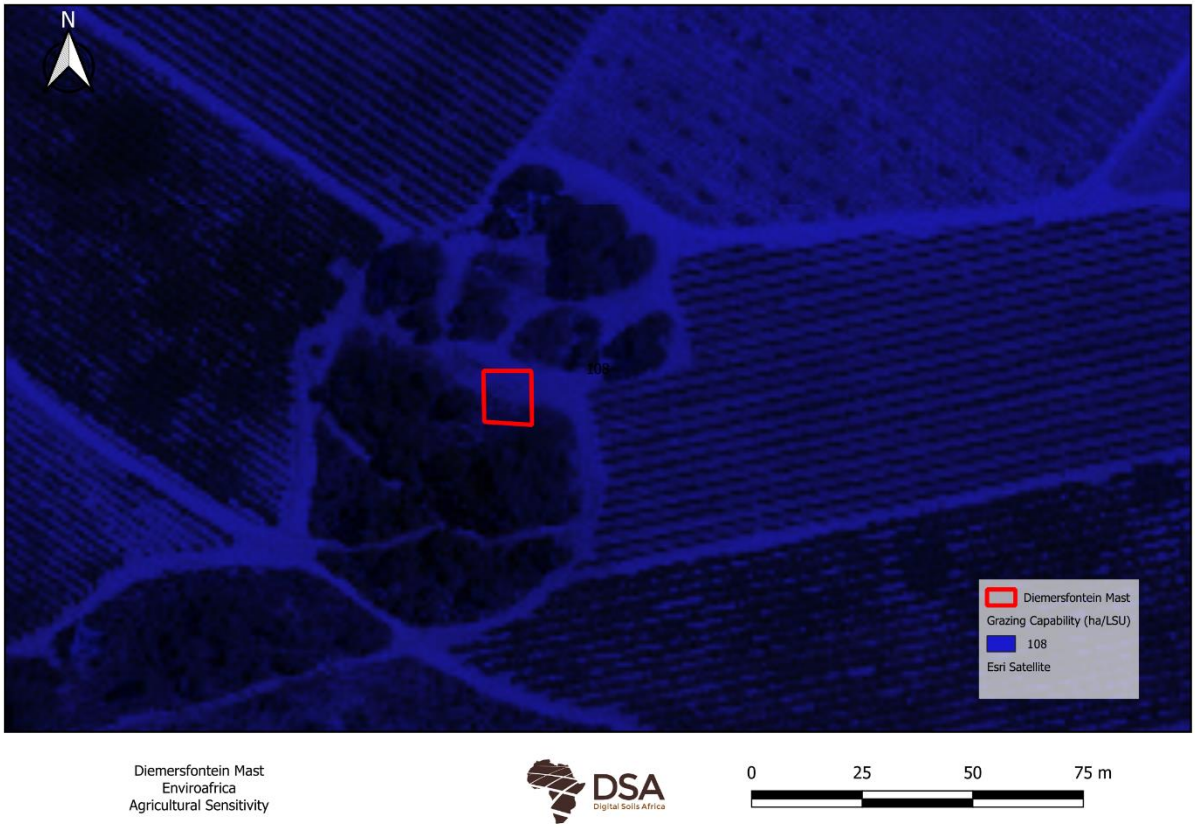

FIGURE 12: GRAZING CAPACITY FOR THE SITE AND THE SURROUNDING AREA (DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES, 2016).

LAND USE

South African National Land-Cover 2020 (SANLC 2020) (GeoTerraImage, 2020) was compared to the 2014 Land Cover to determine if there was a land use change since 2014. The SANLC 2020 classifies the site as 11(Low Shrubland (Nama Karoo)), 13 (Natural grassland), 20 (Artificial Sewage ponds), 31 (Other Bare) and 49 (Residential Formal (low veg / grass))(Figure 13) with the class names listed in the TABLE 3 below.

TABLE 3: LEGEND TO FIGURE 13.

No.	Class Name	Class Definition
9	Low Shrubland (Fynbos)	This is the same as class 8, Low Shrubland, but now represents low, indigenous karoo-type vegetation communities, which have been identified using image-based spectral models, but which fall spatially inside the SANBI defined boundaries for Fynbos vegetation communities.

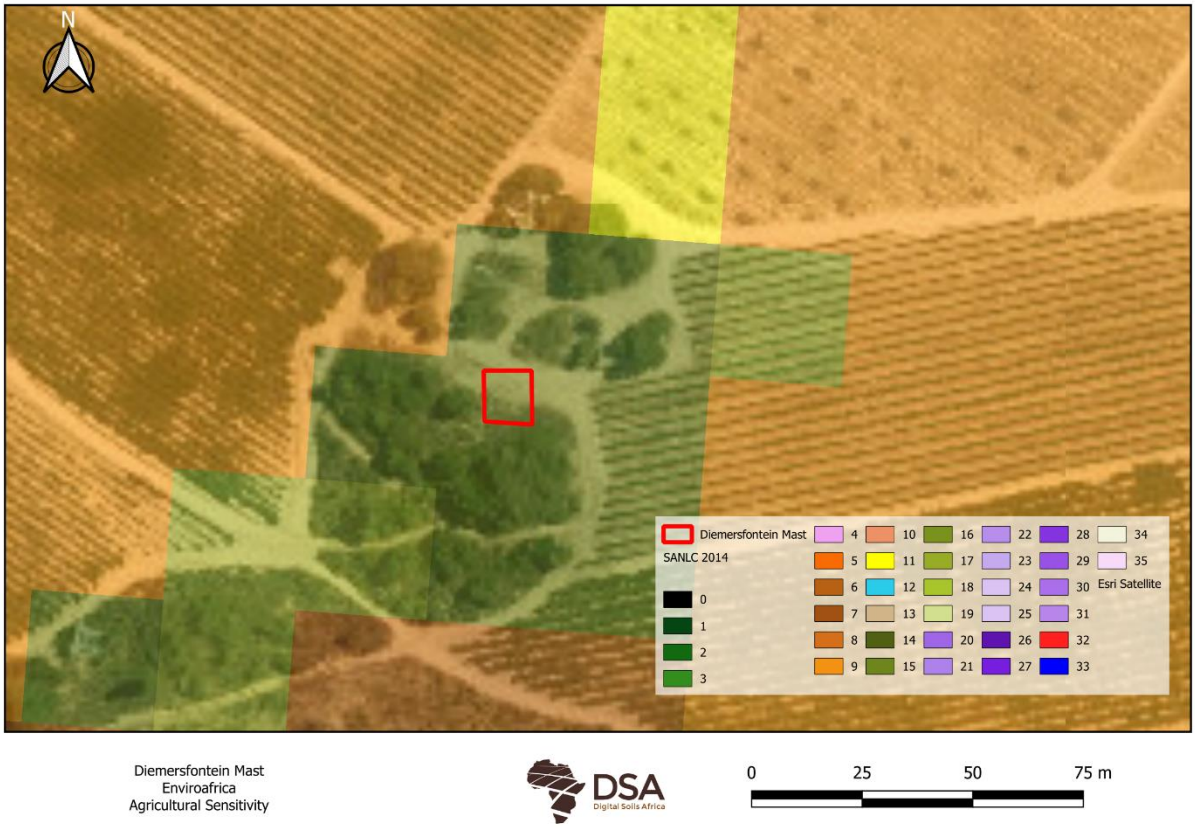

FIGURE 13: SOUTH AFRICAN NATIONAL LAND-COVER 2020 (SANLC 2020).

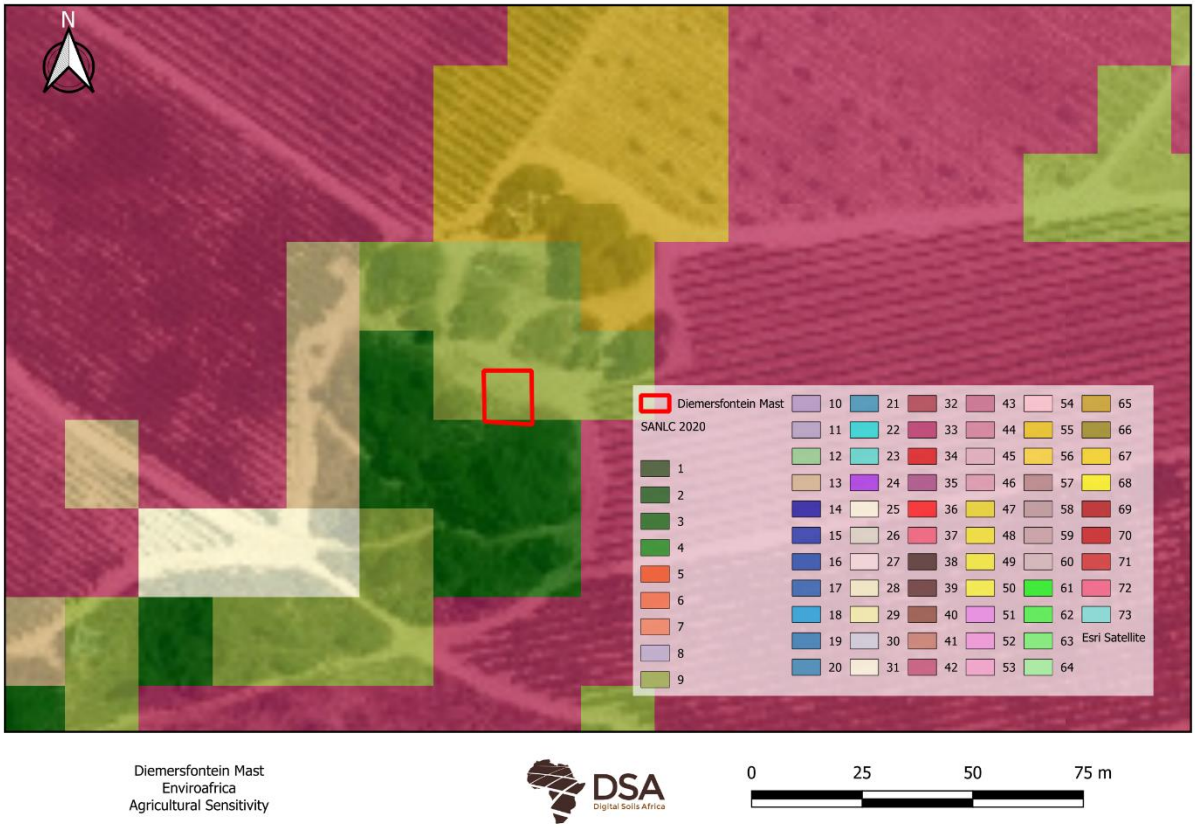

FIGURE 14: SOUTH AFRICAN NATIONAL LAND-COVER 2014 (SANLC 2014).

The Google satellite images suggest that the land use surounding the development site has not changed as cultivated land in the past 9 years (2014 – 2023) (Figure 15). However, the mast is not in a cultivated field as reported in the screening, but rather in a shrubs abd trees between lands. From the satellite images, there has been no major developments in the study site and surrounding areas.

FIGURE 15: GOOGLE SATELLITE IMAGE OF THE STUDY SITE (2014).

COMPLIANCE STATEMENT

This Agricultural Compliance Statement conforms with the Environmental Authorization requirements stipulated by the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"). The Environmental Screening Report (ESR) generated through the National Web-based Screening Tool identifies the study area as having a very high sensitivity due to the presence of cultivated fields.

Findings from the desktop assessment:

- The study area is situated within a Protected Agricultural Area.
- No Field crop boundaries were recorded in SANLC 2014 and 2020.
- The climate capability of the area was classified as moderate to high.
- Fa land types are comprised shallow soils. The soil capability was classified as low.
- The area had a low terrain capability.
- The overall land capability was as considered not arable for the site.
- The grazing capacity of the study area was extremely low (108 ha/LSU).

Due to the pixel size of the raster used in the screen there is a slight overlap of crop boundaries. Therefore, the placement of mast between lands is supported. It is the specialist's opinion that the development does continue.

APPENDIX 1: SPECIALIST CV

DR DARREN BOUWER

EDUCATION

PhD Soil Science	University of the Free State	2018
M.Sc. Soil Science	University of the Free State	2013
B.Sc. Soil Science (Hon)	University of the Free State	2009
B.Sc. Soil Science	University of the Free State	2008
Matric certificate	Queens College	2005

PROFESSIONAL AFFILIATIONS

- SACNASP- Pri Nat Sci 400081/16
- Member of the Soil Science Society of South Africa
- Member of the Soil Classification Work Group
- Member of South African Soil Surveyors Organisation

WORK EXPERIENCE

- **Digital Soils Africa** / Soil Scientist - May 2012 – Present
- **Ghent University** / Researcher- January 2016 - December 2016
- **University of the Free State**/ Assistant Researcher- January 2011- December 2015

PUBLICATIONS

Total consultancy reports: >120 **Total Publications: 5**

Most relevant:

Bouwer, D., Le Roux, P. A., van Tol, J. J., & van Huyssteen, C. W. (2015). Using ancient and recent soil properties to design a conceptual hydrological response model. Geoderma, 241, 1–11.

Van Zijl, G. M., Bouwer, D., van Tol, J. J., & le Roux, P.A.L. (2014). Functional digital soil mapping: A case study from Namarroi, Mozambique. Geoderma, 219-220, 155–161.

SPECIALIST DECLARATION

I, Darren Bouwer, declare that –

- I act as the independent specialist in this application;
- I regard the information contained in this report to be true and correct;
- I do not have a conflict of interest in this project;
- I will conduct the work relating to the project in an objective manner.

Dr Darren Bouwer
PhD Soil Science
Pri Nat Sci 400081/16