



AGRICULTURAL ASSESSMENT: COMPLIANCE STATEMENT

ENVIRONMENTAL AUTHORISATION FOR THE DEVELOPMENT AT THE EXPANSION OF THE
KLEREFONTEIN SUPPORT BASE IN THE NORTHERN CAPE

Compiled for:

Delta Built Environment

Reference: Neelan Maduray

Compiled by

Dr Andries Gouws Index

March 2023

DECLARATION

The observations, conclusions and recommendations made in this report are based on the best available data and on best scientific and professional knowledge of the directors of INDEX (Pty) Ltd. The report is based on GIS programming and utilises satellite tracking to map survey points. Survey points are normally accurate to within 3 metres; which must be considered in the use of the information.

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General declaration:

- INDEX acted as the independent specialist in this application;
- Performed the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- There were no circumstances that may compromise INDEX's objectivity in performing such work;
- INDEX have expertise in conducting the specialist report relevant to this application, including knowledge of NEMA and its regulations and any guidelines that have relevance to the proposed activity;
- Have no and will not engage in conflicting interests in the undertaking of the activity.
- The study was undertaken by Dr Andries Gouws. He is a registered member of SACNASP in the category of Agriculture.

▪ . The signature is written in black ink and is cursive, appearing to read 'Gouws'.

March 2023

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SUMMARY

FINDINGS AND ANALYSES

- There is no land that can be regarded as high potential cropping land that be protected because it is *highly sensitive* for farming purposes.

IMPACT ASSESSMENT

- There will be no loss of high potential soil and
- no impact on cattle production.

RECOMMENDATION

The land on which the development is proposed is low potential cropping land.

It has low sensitivity.

It is recommended that construction be approved.

1 BACKGROUND

Delta requested a specialist study for agriculture as part of the Environmental Impact Assessment for the expansion of the Klerefontein Support Base in the Northern Cape. The Screening tool indicates that the proposed project has low sensitivity for agriculture. The portions of high sensitivity are located alongside watercourses and are occasionally planted as and when surface runoff permits storage of water for irrigation. No such land is located on the site.

SCOPE OF WORK

According to the Agricultural Protocol in Notice 320 of EIA regulations a site sensitivity verification must be undertaken through the use of a) a desk top analysis, using satellite imagery and (b) a preliminary on-site inspection; and (c) any other available and relevant information.

The work will be done in line with the guidelines and specifications specific to the agricultural protocols described in the National Screening Tool.

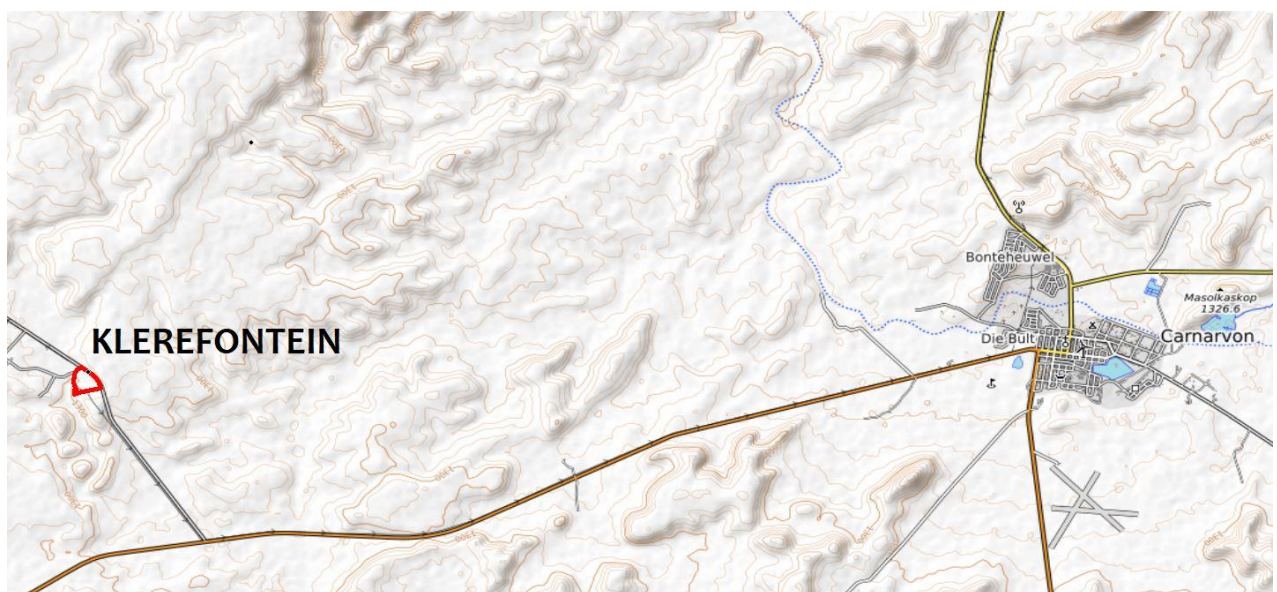


Figure 1. Locality of the site

2 METHODS AND PROCEDURES

SITE SENSITIVITY VERIFICATION

The verification is a review of existing information on soils and topography on a desktop level to determine areas with high sensitivity in terms of Notice 320 of the National Environmental Management Act in May 2020 of the Department of Environmental Affairs. The current use of the land and the environmental sensitivity of the site are available in the screening tool, and were used in assessing the site.

- The desktop verification was done through use of satellite imagery;
- The aim was to verify the findings of the interpretation done on the satellite images and of the data obtained from the Screening Tool.
- The outcome of the site verification is included in this report.

The report compared the current land use to the environmental sensitivity as identified by the screening tool.

SITE EVALUATION PROCESS

Satellite images were used as backdrop and the present land uses digitised. Capability classification is according to the guidelines published on the AGIS website of the National Department of Agriculture (NDA) was used to determine the capability of soils and their agricultural potential (DALRRD, 2019).

3 SITE EVALUATION

3.1 PRESENT LAND USES

The present land uses are indicated below:

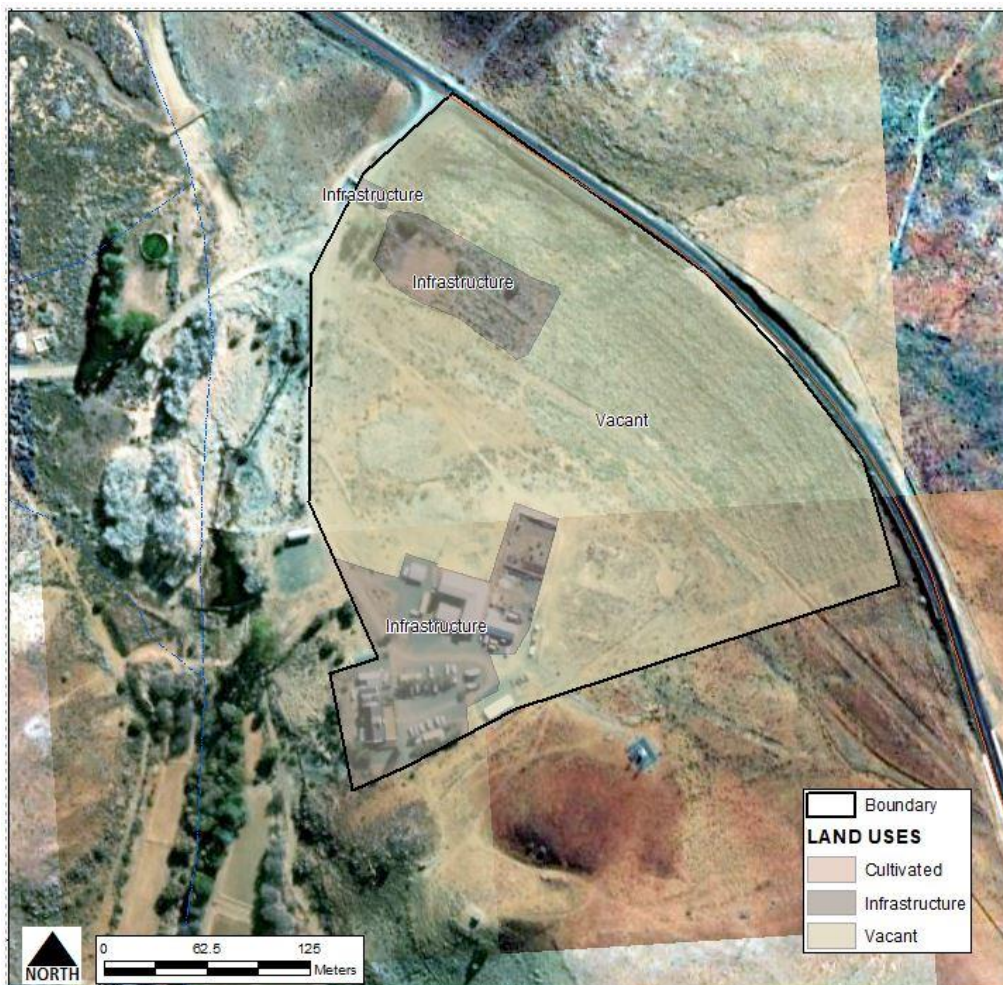


Figure 2. Present land uses (2023)

- The area that will be developed is approximately 9,1ha.
- Bing satellite images indicate that the land is vacant.
- There is no cultivated land on the site.

3.2 CLIMATE

The site is located in a very arid part of the country, which receives around 200 mm of rain per year. It falls mainly during the summer months.

The summer temperatures are high and often exceeds 40 degrees. Winters are cold with frost from May through to September. Evaporation is around 2 400 to 2 600 mm per year

The climate is not conducive to rainfed cropping. Crops are only produced under irrigation.

3.3 SOIL PROPERTIES

SOIL TYPES

The study site is located on Ecca shale, with soils that have little pedological development. The Landtype is Fo444. General soil features of the Landtype is that the very sandy with poorly developed structure. The dominant soils are Ms/Ms 50%, Hu (35%) and Sw (10%).

SOIL CAPABILITY

In 2002 the Land Use and Soil Management (DLUSM) of DALRRD developed a national spatial land capability data set to eight land capability classes. The approach followed was based on the approach of Klingebiel and Montgomery (1961) but adapted for South Africa by the Multilateral Technical Committee for Agriculture and Environmental Affairs' Task team.

The aim was to develop a system for soil and land capability classification. It further aimed to incorporate the parameters within a Geographic Information System (GIS). The resulted spatial data set was derived at from a 1:250 000 land type data set. These were then combined with climatic and terrain parameters that gave the land capability.

This dataset is used within the screening tool.

While the new dataset is more complex than that of Klingebiel *et al*, the latter has clear guidelines and is generally still followed when assigning capability to land. A comparison between the two systems is provided below.

Table 1. Relationship between grading of the Screening tool and that of Klingebiel et al.

DALRRD (2016)	Klingebiel	Capability	Arability
1-2	viii	Very low	Not arable
3-4	vii	Very low to low	
5-6	vi	Low	
7	v	Low to moderate	
8	iv	Moderate	Arable
9-10	iii	Moderate to high	
11-12	ii	High	
13-14	i	High to very high	
15	i	very high	

Land capability classes are interpretive groupings of land with similar potential and limitations or similar hazards. Land capability involves consideration of difficulties in land use owing to physical land characteristics, climate and the risks of land damage from erosion and other causes.

The classic eight-class land capability system (Klingebiel & Montgomery, 1961) was adapted for use by the South African Department of Agriculture in their Agriculture Geographic Information System (AGIS).

Land capability as indicated below is classified according to guidelines published by the National Department of Agriculture in AGIS.

Land Capability is determined by the collective effects of soil, terrain and climate features and shows the most intensive long-term use of land. At the same time, it indicates the permanent limitations associated with the different land-use classes.

According to the criteria in AGIS, the land is not arable and falls within Class iv and v.

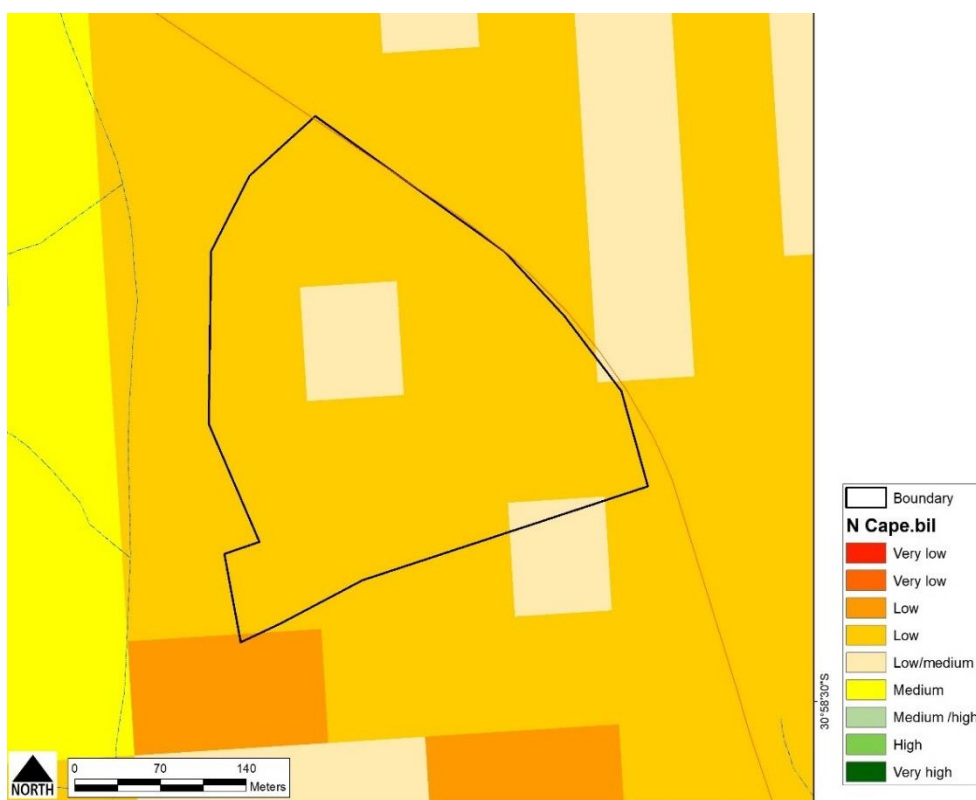


Figure 3. Land use capability (DALRRD)

3.4 VEGETATION

- The site is located in the Western Upper Karoo; it is harsh shrubveld with sparse grasses.
- The grazing capacity is estimated at 30ha/large livestock unit. The total area is 9 hectares, which is not sufficient to accommodate any livestock.

3.5 WATER

There is a perennial river to the south of the site. There is no irrigated land on the property.

3.6 INCOME

The total site is 9 hectares. The site is too small to accommodate livestock. The potential income in the present state is zero.

4 PROPOSED DEVELOPMENT

The proposed development is to expand on the existing support facilities of SKA. The site is already used for the SKA. The proposed development is indicated below.



Figure 4. Proposed development

5 SENSITIVITY ANALYSES

5.1 ECOLOGICAL SENSITIVITY – SCREENING TOOL

The Department of Forestry, Fisheries and Environment published Notice 320 in 2020 that describes the minimum criteria when applying for environmental authorisation.

This protocol provides the criteria for the assessment and reporting of impacts on agricultural resources for activities requiring environmental authorisation. The assessments requirements of this protocol are according to the level of environmental sensitivity as indicated by the national web-based environmental screening tool for agricultural resources. It is based on the most recent land capability evaluation as provided by the DALRRD.

According to the protocol, an applicant intending to undertake an activity where it occurs on land with 'very high' or 'high' sensitivity for agricultural resources must submit an Agricultural Agro-Ecosystem Specialist Assessment.

Alternatively, a *Compliance statement* will suffice.

In the case of this project, the Screening Tool indicates that the site sensitivity is low.

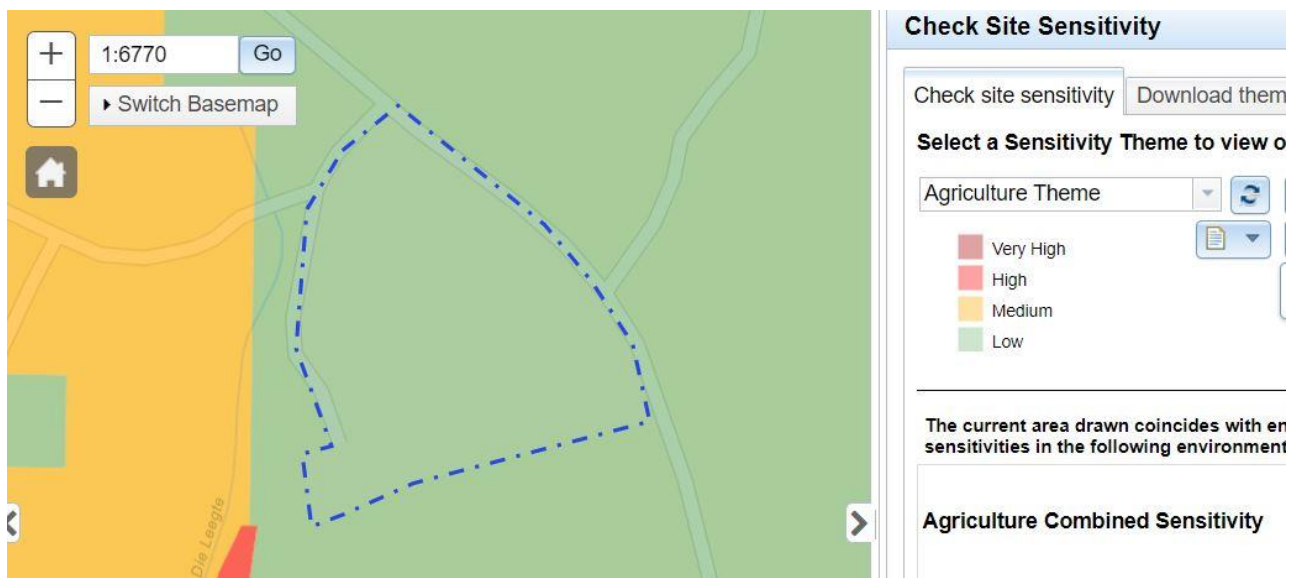


Figure 5. Results of the Screening tool

5.2 SPECIALIST SITE ANALYSES

Sensitivity verification was undertaken by desk top analysis using satellite imagery and a site visit.

The outcome of the site sensitivity verification record that:

- According to guidelines in AGIS (DALRRD), the land has no arable potential.
- No land was found to be high potential for cropping and which should be protected.

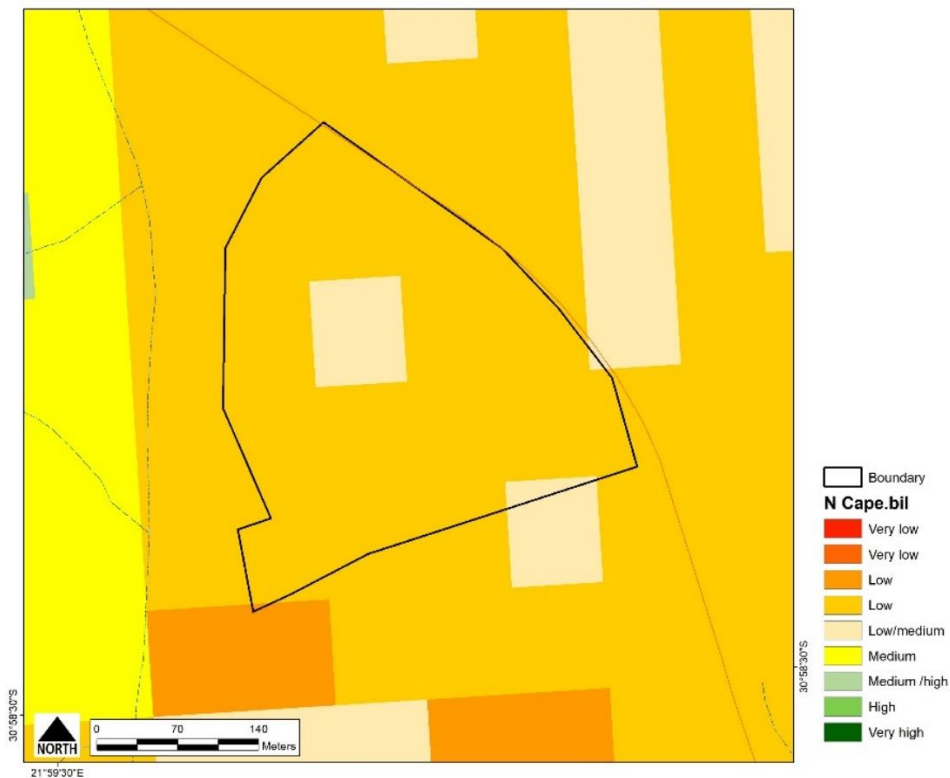


Figure 6. Agricultural potential (DALRRD)

5.3 SPECIALIST DECLARATION

AGRICULTURAL COMPLIANCE STATEMENT

- SACNASP registration of specialist and a curriculum vita – Refer to Section 9;
- A signed statement of independence by the specialist – Refer to Section 1;
- The site visit was considered unnecessary because of the size of the property and because sufficient information was available for a desktop study. The duration, date and season of the site inspection is not relevant because the main criteria for farming potential are soils, climate and water availability. These are not bound to seasons;
- For the description of the methodology used to undertake the site assessment: Refer to Section 2;
- The proposed development is located only on *low* sensitive land. The project will take up the entire area (refer to Section 4);
- Confirm that the site is of low or medium sensitivity for agriculture. Refer to Section 5. All the land is indeed low sensitivity because it is not suitable for cropping and is too small for livestock. The proposed development will have no impact on the agricultural production capability. Refer to Section 5.2.
- A map showing the proposed development footprint on the agricultural sensitivity map is provided in Section 4 and 5. Note that the entire site has a low sensitivity;
- Confirmation that all reasonable measures have been taken through micro placement to avoid or minimise fragmentation and disturbance of agricultural activities: The development will take up the entire site. Alternative placement is not possible;
- A statement from the soil scientist or agricultural specialist on the acceptability of the proposed development and a recommendation on the approval of the proposed

development: The development will not affect farming. Therefore, no reason can be found not to approve the development. It is our recommendation that the construction be allowed;

- There are no conditions to which the statement is subjected;
- No mitigation measures are required.
- No gaps in knowledge or data were found.

6 IMPACT ASSESSMENT

LOSS OF HIGH POTENTIAL LAND

No high potential land was found on the site.

- No impact.

LOSS OF AGRICULTURAL PRODUCTION

There is no land cultivated on the property nor any livestock production.

- No impact.

LOSS OF AGRICULTURAL INFRASTRUCTURE

There are no fences or farming infrastructure.

- There is no impact.

LOSS OF SOIL DUE TO EROSION

Soil loss because of the low rainfall is not expected.

Runoff from hard surfaces should be dealt with by a Stormwater Management Plan. This is an engineering function and is normally addressed as part of the project design.

- No impact.

7 CONCLUSIONS

FINDINGS AND ANALYSES

- There is no land that can be regarded as high potential cropping land that should be protected for farming purposes.

IMPACT ASSESSMENT

- There will be no loss of high potential soil and no impact on cattle production.

IMPACT AND MITIGATION DURING CONSTRUCTION

- Security during construction: Mend fences when they are breached in order to protect livestock.

- Make the contact details of the main contractors available to surrounding landowners and attend to any problems expeditiously.
- Hazardous substances should be safely disposed of or stored to minimise any impact on animals and water resources.

IMPACT AND MITIGATION DURING OPERATIONAL PHASE

- Road reserves require normal maintenance. Mitigation is normally not required. However, alien vegetation should be controlled.
- Implement the Environmental Management Programme (EMPr) for the duration of the operations to eliminate potential impacts.

8 RECOMMENDATION

- The land on which the development is proposed is low potential farming land.
- It has low sensitivity.
- It is recommended that construction be approved.

9 ADDENDA

9.1 SOURCES OF INFORMATION

- a) Criteria for high potential agricultural land in South Africa, Department of Agriculture, Directorate Land Use and Soil Management, 2002.
- b) Grondklassifikasie Werkgroep, 1991. Grondklassifikasie, 'n Taksonomiese sisteem vir Suid Afrika, Departement van Landbou-ontwikkeling, Pretoria.
- c) Department of Agriculture. Grazing capacity. Development of Agricultural Land Framework Bill , 2016
- d) WRC, 2003 South African Atlas of Agrohydrology and Climatology, Water Research Commission
- e) CROPWAT 8.0 has been developed by Joss Swennenhuis for the Water Resources Development and Management Service of FAO.

9.2 SACNASP CERTIFICATE



THE SOUTH AFRICAN COUNCIL FOR NATURAL SCIENTIFIC PROFESSIONS

herewith certifies that

Johan Andries Gouws
Registration number: 400140/06

has been registered as a

Professional Natural Scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)

in the following field(s) of practice
(Schedule I of the Act)

Agricultural Science

11 July 2006
Pretoria


President


Chief Executive Officer

9.3 CURRICULUM VITAE (CV)

Position Title and No.	Agriculture, Land use planning and wetland specialist. INDEX
Name of Expert:	Andries Gouws
Date of Birth	12/04/1955
Country of Citizenship /Residence	South Africa

Education

Name of institution: College/University or other	Degree/diploma/certificate or other specialized education	Date completed
University of Pretoria, South Africa	BSc. Agriculture	1979
University of Bloemfontein	BSc. Honours, Agriculture	1987
Potchefstroom Collage for Agriculture	Diploma: Stereoscopic aerial photo interpretation of natural resources for farm planning	1981
University of South Africa	Diploma: Financial management	1992
University of Trinity	PhD: Integrated agricultural development	2007

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
1993 - current	INDEX - Director and co-owner: Responsibility: Agriculture and land use planning. Contact: Eugene Gouws - Director +27 82 55 33 787	RSA	Provided specialist assessment services in agriculture and land use planning for various development projects.

Membership in Professional Associations and Publications:

Soil Science society of South Africa.

South African Council for Natural Scientific Professions – Registered Professional Scientist
(Reg no: 400140/06)

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
Position:	Agricultural Impact Assessment for the Proposed Mookodi-Mahikeng 400kv Line. 2018.

Agricultural Specialist	Client: Nemaï Consulting
	Agricultural Impact Assessment for the Proposed Foxwood Dam 2015 – 2016 Compiled the specialist report on Agricultural impact Client: Nemaï Consulting, DWS
	Agricultural Impact Assessment for the Proposed Mokolo and Crocodile River (West) Water Augmentation Project (MCWAP) (2017 – 2019) Compiled the specialist report on Agricultural impact Client: Nemaï Consulting, DWS
	MSOBO COAL – HARWAR; economic study for the farming enterprises Discussion of the natural resources that influences agricultural potential; Farming and the potential for different enterprises; Indicate the potential income from main enterprises and Indicate the financial impact of the development on the farmers. (2013/4) Client: Demacon
	Agricultural potential study of Portion 21 (Portion 1) of the farm Koppieskraal 1157-IR 2019. Client: Adv Johan du Plessis
	Agricultural Potential Assessment: Albany Wind Energy Facility & Grid Infrastructure Near Makhanda, Eastern Cape Province 2020 Client: CES Environmental and Social advisory Services
	Agricultural potential and impact assessment of Available Land At Mopeia, Mozambique 2016 Client: Barari Forest Management. Department: Research & Development Abu Dhabi

Expert's contact information: E-mail: index@iafrica.com
Phone: +27 (0) 82 807 6717

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes my qualifications, my experience and myself.

Andries Gouws

March 2023

Name of Expert

Signature

Date