

Appendix B

SPECIALIST CVS AND DECLARATIONS



Appendix B.1

SPECIALIST CVS



6 APPENDIX A: SPECIALIST INVESTIGATOR

6.1 Details

<u>Specialist investigator:</u>	Albert Richardt Götze (<i>Pr.Sci.Nat.</i>)
<u>ID:</u>	7405275082083
<u>Highest tertiary qualifications:</u>	B.Sc. (Hons) – Botany and Soil Science: Resource Development and Utilization (NWU, Potchefstroom). M.Sc. Botany: Phytosociology & Restoration Ecology (NWU, Potchefstroom).

Professional affiliations:

- SACNASP – membership nr: 004497; current expiry date: 31 March 2026
- South African Association of Botanists (SAAB) – membership no: 813
- South African Wetland Society – membership ID: 2164640
- Soil Science Society of South Africa (SSSSA) – membership ID: 2371575

Contact details:

- Mobile: 078 096 8415
- e-mail: albie.erc@gmail.com

6.2 Vocational Experience

In 2002, during my post graduate studies, I started consulting in the fields of botany and soil science part time. In 2003 I started out as full time, independent, environmental consulting specialist under the name Environment Research Consulting (ERC) as sole proprietor. In the years since, I have gained experience in terrestrial and aquatic biodiversity assessments and soil work in the grassland and savannah biomes of South Africa as well as occasional work in the Nama Karoo, Indian Ocean Coastal Belt and Albany Thicket biomes. I have also on occasion conducted specialist studies in Eswatini (Swaziland).

Although botany, soil science and wetland delineations were my primary specialties for many years, I gradually gained experience in the assessment of terrestrial fauna. I have experience in live small mammal trapping and identification in the grassland and savannah biomes. I participated in several small mammal monitoring and research projects between 2002 and 2014 under the mentorship of Mr. Koos Kotze who, at the time of his passing at the end of 2014, was a full-time lecturer in animal studies at the Tshwane University of Technology's Nature Conservation Faculty. During the same period, I gained knowledge and experience in the assessment of other fauna fields of practice i.e. large mammals and herpetofauna.

Between 2008 and 2014, I held a part-time position at Northwest University as a research assistant, at the School for Environmental Sciences and Development, to post-graduate students in the fields of Botany and Resource Development & Utilization. I also similarly assisted pre-graduate nature conservation, and game ranch

management students at Tshwane University of Technology between 2009 and 2012, and on one occasion for the University of Venda, on a consultation basis. I have authored two and co-authored four scientific papers and research notes for various local scientific publications since 2004.

Past projects of a similar nature:

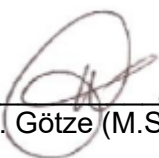
- 2014: Soil, land capability and agricultural potential assessment for: the proposed Tiger Kloof Solar Photovoltaic Energy Facility on portions 3 & 4 of the farm Waterloo 730 IN, Naledi Local Municipality, North West Province (*Kabi Solar (Pty) Ltd*).
- 2015: Soil, land capability and agricultural potential study on portion 1 of the farm Grootpoort 168 RD, Free State Province (*Solis Environmental*).
- 2023: Soil, land capability and agricultural potential SSVR for the proposed development of the Abo Mopane Solar PV facility near Steelpoort, Limpopo Province (*Blue Crane Environmental*).
- 2024: Soil, land capability and agricultural potential SSVR for the proposed development of the Dinaledi Solar PV Between Dealesville and Bultfontein, Free State Province (*Blue Crane Environmental*).
- 2024: Soil, land capability and agricultural potential SSVR for the proposed development of four borrow pits for the upgrade of the R34 road between Welkom and Kroonstad, Free State Province (*KSEMS Environmental Consulting*).

6.3 Professional Declaration

I, Albert Richardt Götze, as the appointed specialist, hereby declare/affirm the correctness of the information provided in this Site Sensitivity Verification Report, and that I:

- meet the general requirements to be independent and have no business, financial, personal or other interest in the proposed development and that no circumstances have occurred that may have compromised my objectivity; and
- am aware that a false declaration is an offence in terms of regulation 48 of the EIA Regulations (2014).

I realize that a false declaration is an offence in terms of Regulation 71 of NEMA and is punishable in terms of section 24F of the Act.


A.R. Götze (M.Sc.; *Pr.Sci.Nat.*)

T GÖTZE **

daarvan

Handwritten text: *et.*

[Handwritten signature]

Handwritten signature: *W. J. J. J.*

Registateur

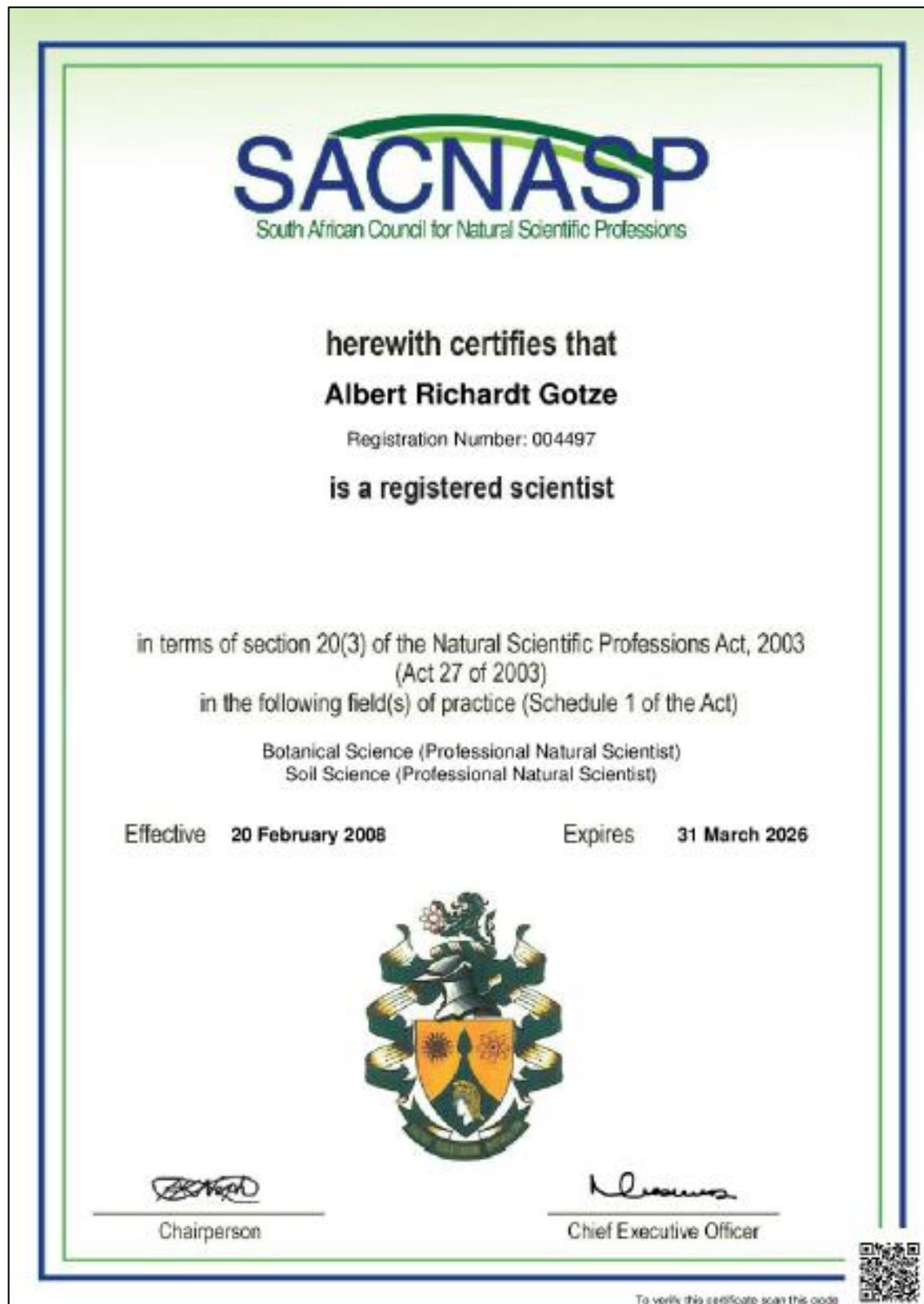


Figure 13: SACNASP registration certificate of the specialist that conducted the assessment.



Details

Email: andrew@hawkhead.com
Mobile: +27 83 361 0373
Address: 43 Waterbuck Crescent,
River Club Estate, Sandton, 2191
South Africa



Education & Qualifications

University of the Witwatersrand
M.Sc. Resource Conservation
Biology (2013).

University of KwaZulu-Natal
BSc. Hons. Ecology and
Conservation Biology (2005).

University of KwaZulu-Natal
BSc. Zoology and Grassland Science
(2004).

**Bryanston High School,
Johannesburg**
Matric Exemption
(2000).



Profile

Andrew is an ecologist with an M.Sc. Degree in Resource Conservation Biology and 17 years of experience working in biodiversity consulting and ecological research. He is registered with the South African Council of Natural Scientific Professions as a Professional Natural Scientist. He currently work as an independent consulting ecologist, with Hawkhead Consulting. During his career he has worked on projects in remote areas in several African countries including South Africa, Botswana, Democratic Republic of the Congo, Ethiopia, Ghana, Mozambique, Tanzania and Zambia. He also previously worked in the United Kingdom and the United Arab Emirates.



Work Experience

Independent Senior Ecologist
Hawkhead Consulting, South Africa
September 2020 – Present

Consulting ecologist focusing on terrestrial ecology. Andrew specialises in conducting baseline flora and fauna surveys, ecological impact assessments, and developing mitigation and management programmes for projects and operations in various industry sectors. Core services and responsibilities include, amongst others:

- ☐ Biodiversity study design and implementation;
- ☐ Biodiversity baseline and impact assessment reporting;
- ☐ Mitigation measure design and application;
- ☐ Vegetation surveys and vegetation community mapping;
- ☐ Fauna surveys for mammals, birds, reptiles and amphibians;
- ☐ Development of biodiversity management plans, including rescue and relocation plans, rehabilitation plans, biodiversity monitoring plans and alien invasive species control and eradication plans.

Terrestrial Ecologist
Golder Associates Africa, South Africa
June 2011 – September 2020

Ecologist responsible for the management and implementation of baseline biodiversity studies and ecological impact assessments for development projects in the mining, power generation, transport, land development and industrial development sectors throughout sub-Saharan Africa.

Role responsibilities included project management, technical review, biodiversity study design and implementation, flora and fauna surveys, biodiversity baseline and impact assessment reporting, development of biodiversity management plans, rehabilitation plans and alien invasive species control and eradication plans. These studies were conducted to satisfy national environmental regulations and/or international financing requirements, including the International Finance Corporation's Performance Standard 6.



Affiliations

Member of the South African Council of Natural Scientific Professions – Professional Natural Scientist (400687/15).

Member of the South African Wildlife Management Association

Member of the South African Association of Botanists



Work Experience (continued)

Independent Ecologist

Subcontracted to KPMG, United Arab Emirates

March – April 2011

Subcontracted to KPMG as a subject matter expert (ecology) on the internal audit of Sir Bani Yas Island's Conservation Department (United Arab Emirates). The audit focused on evaluating the efficacy of the island's various conservation practices, including game management, feed provisioning, carnivore breeding and monitoring, veterinary care and vegetation maintenance.

Environmental Consultant

WSP Environment and Energy, South Africa

August 2008 – March 2011

Environmental consultant, responsible for a range of environmental projects and services including managing environmental authorisation processes (BAs and EIAs), facilitating stakeholder engagement processes, conducting compliance audits, developing environmental management programmes and conducting specialist ecological studies.

Research Technician

Yale University, Kruger National Park, South Africa

October 2007 – May 2008

Research technician on the Savanna Convergence Experiment (SCE). The SCE project was a long-term cross-continental study that investigated the role of mega-herbivores in fire-grazing interactions and their influence on vegetation dynamics. Responsible for collecting and analysing vegetation composition and productivity data, as well as herbivore distribution data.



Publications

- ❑ Zinn, A.D., D.E., Burkepile and D.I. Thompson (In prep). Impacts of fire and herbivores on tree seedling establishment in a South African savanna.
- ❑ Burkepile, D.E., C.E. Burns, E. Amendola, G.M. Buis, N. Govender, V. Nelson, C.J. Tambling, D.I. Thompson, A.D. Zinn and M.D. Smith (2013). Habitat selection by large herbivores in a southern African savanna: the relative roles of bottom-up and top-down forces. *Ecosphere*, 4(11):139.
- ❑ Knapp, A.K., D.L. Hoover, J.M. Blair, G. Buis, D.E. Burkepile, A. Chamberlain, S.L. Collins, R.W.S Fynn, K.P. Kirkman, M.D. Smith, D. Blake, N. Govender, P. O'Neal, T. Schreck and A. Zinn (2012). A test of two mechanisms proposed to optimize grassland aboveground primary productivity in response to grazing. *Journal of Plant Ecology*, 5, 357-365.
- ❑ Zinn, A.D., D. Ward and K. Kirkman (2007). Inducible defences in *Acacia sieberiana* in response to giraffe browsing. *African Journal of Range and Forage Science*, 24, 123-129.



Publications (continued)

- ❑ Zinn, A.D. (2007). Exploitation vs. Conservation: A Burgeoning Fifth Column. *African Wildlife*, 61, 9-11.
- ❑ Andrew Zinn (2006). Conflict Resolution. *Africa Birds and Birding*. Vol. 11, No. 5, 12-13.



HAWKHEAD
CONSULTING

Andrew Zinn BSc. (Hons.) MSc.
Terrestrial Ecologist (*Pr.Sci.Nat.* 400687/15)
Hawkhead Consulting
Email: andrew@hawkhead.co.za
Cell: + 27 83 3610373



herewith certifies that

Andrew David Zinn

Registration Number: 400687/15

is a registered 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 1 of the Act)

Ecological Science (Professional Natural Scientist)

Effective **18 November 2015**

Expires **31 March 2026**



A handwritten signature in black ink, appearing to read 'S. Neph', is positioned above a horizontal line.

Chairperson

A handwritten signature in black ink, appearing to read 'N. Maseko', is positioned above a horizontal line.

Chief Executive Officer





CEDAR TOWER
SERVICES

CURRICULUM VITAE



NICHOLAS GEORGE WILTSHIRE

Tel: 082 303 7870 (c); 021 013 0131 (w)

E-mail addresses:

nic.wiltshire@ctsheritage.com

nic.wiltshire@cedartower.co.za

nic.wiltshire@openheritage.org.za

ID number: 7902225066083

EDUCATION:

- M.Sc., Archeology - University of Cape Town (2011)
- B.Sc. (Honours), Archeology - University of Cape Town (2005)
- B.Sc., Archeology and Environmental & Geographical Sciences - University of Cape Town (2004)
- A+ and MCSE - New Horizons, Bloemfontein (1999)
- Matric (Distinction) - St Andrew's School, Bloemfontein (1997)

EMPLOYMENT HISTORY:

December 2013 - present : Cedar Tower Services (Pty) Ltd, Cape Town, South Africa

Position : Owner/Director

April 2015 – present : OpenHeritage, Cape Town, South Africa

Position : Founder

Responsibilities :



CEDAR TOWER
SERVICES

- Director of OpenHeritage, a non-profit organisation tasked with rolling out free open source heritage management systems to developing nations

December 2013 - present : Mothers2Mothers - AgeWell Global LLC, (pilot) through Cedar Tower Services Cape Town, South Africa

March 2015 - present : IT Services Consultant to m2m

Responsibilities :

- Currently providing ongoing project support

December 2013 – December 2014 : AgeWell Global LLC Developer

Responsibilities :

- Drupal development of handheld recording system on smartphones and tablets for health data in the older persons sector

November 2011 – November 2013 : South African Heritage Resources

Agency (SAHRA) Cape Town, South Africa

Position : Project Manager & Developer: SAHRIS (The South African Heritage Resource Information System)

Responsibilities :

Design and implement South Africa's first national heritage management system. In summary this involves:

- Planning and selection of a suitable platform to develop SAHRIS
- Planning, selection, installation and setup of dedicated servers using Ubuntu Server OS
- Development of SAHRIS on the Drupal Platform
- Setup of a Geoserver to interface with Drupal
- Live Disaster Recovery Setup
- Installation and setup of mass storage devices (NAS Servers) across multiple data centres
- Setup of replication and backup
- Regular planning and assessment meetings with key stakeholders to outline future system improvements
- Training users, especially of SAHRA and the nine Provincial Heritage Resources Authorities,



and museums

- Creation of training videos and help documentation
- Implementation of the website theme designed by an outside graphic design company
- Data Migration of Sites, Objects, Media Content, Profiles, Reports
- Designing, planning and overseeing SAHRA's Digitisation
- Promotion of SAHRIS and production of peer reviewed articles

November 2008 - June 2010 : Heritage Western Cape Position : Senior Heritage Officer:
Archaeology Responsibilities :

- Identify, protect and manage archaeological resources in the Western Cape
- Assess development applications, write policies, nominate sites for Provincial Heritage Site (grade 2) status
- Maintain and update GIS reporting database with SAHRA

Project Involvement: November 2008 – March 2009

- Designed, wrote and implemented database tracking system for applications and issuing of coded Records of Decision
- Implemented and maintained GIS system for archaeological sites, reports and provincial heritage sites
- Worked closely with SAHRA in bringing the GIS Reporting Project to its first release in November 2009
- Ran a workshop in July 2009 to allow all the practitioners in the province to see the demonstration of the database and the updated requirements of the system in terms of the minimum standards
- Involved monthly reporting and quarterly reporting to management as per government policies

December 2007 – September 2011 (and intermittently prior) : Archaeological Consultant,
Independent

IT Contractor & Research Assistant Project Involvement :

African Climate & Development Initiative (ACDI), UCT, Cape Town, 2011

- Design of database system for the ACDI audit of projects, departments, people and research units engaged in climate change related research at UCT
- Pooled various GIS data repositories to initiate discussion around the impacts of CC on the



CEDAR TOWER
SERVICES

Cederberg Municipality and prepared the GIS groundwork for a demonstration presentation in May 2011

- Collaborated with the MAPA project to setup the structure for an online solution to hosting the UCT projects audit
- Was also involved in the Southern African Regional Universities Association (SARUA) meeting in March 2011 and presented a Google Earth mapping layer linked to the audit database to provide a possible solution to their collaboration framework. Involved in setup and maintenance of WordPress website for the ACDI and UCT steering committee for the Enterprise Content Management (ECM) project

eastern Cederberg Rock Art Group (eCRAG), Western Cape, 2008

- Archaeological surveys for rock art and other archaeological sites from Wupperthal in the north to Op die Berg in the south of the Cederberg
- Contributed to three Conservation Management Plans handed to each owner for completed properties
- Current number of sites documented: 464
- Created and managed the photographic, digital report and GIS archive

Just Fruit and Veg, Killarney Gardens (July 2008-January 2009, November 2010-February 2011) Spar Ordering System:

- Designed and implemented database system to run the Packing Sheets, Production Totals and automatic exports of the Spar Group's orders to JFV Pastel Accounting system
- The system also imports weekly price updates from their unique pricing system

JFV Pricing System:

- Overhauled an Excel based pricing system which calculated suggested selling prices based on margins and cost inputs
- The new system tracks costs and selling price changes per product and is able to export the new prices across multiple price structures directly in Pastel
- Various choices can be manipulated to derive a new selling price and the database has been coded to prevent accidental errors which cropped up in the Excel based system that relied on macros

HIMAP – Historical Mapping Project, Cape Town, June 2009 – December 2009



CEDAR TOWER
SERVICES

- Digitally mapped the historical layers of the 18th century of Cape Town from various historical maps in a project with Dr Antonia Malan
- Combined archival data with the shape files so that various interpretative layers could easily be generated

ACO Prestwich Place, Cape Town, April 2008 – August 2008

- Design and implementation of database system for the Prestwich Place burials
- This includes a GIS mapping of the data and a 3d modelling tool for point cloud data using VRML

Iziko Museums, Cape Town, December 2007 – March 2008

- Design of interactive multimedia exhibit displayed in the rock art collection comprising a selection from the Bleek & Lloyd Archive and the Warmhoek rock art trail in Clanwilliam

Masters (& partly Honours) Project at UCT, Cape Town, 2005, 2008-2011

- Design of database system for the SARU archaeological records
- This involved the digitisation of 10 000 slides and the organisation of all the digital photographs taken since 2001
- All the site records were physically scanned and typed up, mapped on GIS and linked relationally to my system
- Archive generated over 250 gigabytes of data

Genex, Cape Town, July 2007 – October 2007

- Project managed the migration of the accounting systems from Accpac for Windows to Fincon Accounting
- Ran the Accounting department on a short term basis as caretaker before taking on another project at Ellies in Maputo, Mozambique

Millennium Foods, Killarney Gardens, June 2007 Ordering System:

- Designed and implemented networked database system to capture EDI orders from Checkers and to automate standing orders from their other customers
- The system also exports these orders directly into Pastel Accounting and runs their packing and production reports



CEDAR TOWER
SERVICES

Ellies Electronics, Cape Town, February - May 2006

- Project managed the migration of the accounting systems from Accpac (DOS version) to Fincon Accounting
- Setup and installed Windows NT server and email server

Kardex and Tracking Systems, Bloemfontein, November 1999 - February 2000

- Designed two database systems to track stock in a multi-company environment, produce dispatch labels and to automate tripsheets

January - July 2007 : Archaeological Contractor Responsibilities :

- Contract work undertaken for the Archaeological Contracts Office at UCT & Cape Archaeological Survey.
- Cape Nature Archaeological Survey Project from July 2007 – December 2007.

January 2006 – November 2007 : Fincon Position : IT Consultant Responsibilities :

- Training, installation and Accountancy services
- Main clients: Ellies Cape Town, Ellies Maputo, IT Outlook, Genex, Toshiba Central

1998 – 2002 :

- Spent two full years as well as two short term periods working and travelling in Europe and the UK

REFERENCES:

Professor John Parkington, Supervisor at UCT 079 872 4807

Raymond Berkmann, Ellies Electronics, Cape Town 021 532 2225

Dr Janette Deacon, APM Committee, HWC, Cape Town 082 491 5067

Mamakomoren Nkhasi EO, Corporate Affairs, SAHRA 021 462 4502

Dr Mitchell Besser, Mothers2Mothers, Cape Town 021 466 9160



We certify that

Nicholas George Wiltshire

was admitted to the degree of

*Master of Science
specialising in Archaeology*

on 12 December 2011

Vice-Chancellor



Registrar



Association of Professional Heritage Practitioners

MEMBERSHIP CERTIFICATE

THIS CERTIFIES THAT

NICOLAS WILTSHIRE

MEMBERSHIP NUMBER: PHP0075

has been awarded membership as a
PROFESSIONAL MEMBER (PHP)

This membership is subject to the *Standards for Membership and Code of Conduct*, referred to in Sections 2 and 3 of the APHP Constitution respectively. The definition of a Professional may be found at: www.aphp.org.za/membership

Please contact us via info@aphp.org.za should further information be required.

THIS CERTIFICATE IS VALID FROM **1 JUNE 2025 – 1 JULY 2026**

CHAIRPERSON

[Issued by the Association of Professional Heritage Practitioners Executive Committee]

Watermark Image: Lydenburg-Head, circa 500 AD
Illustration from: *Ritual Space in the Zimbabwe Culture*. https://www.researchgate.net/figure/One-of-the-original-Lydenburg-Heads-redrawn-from-photograph-courtesy-Iziko-Museums_fig7_272310317 [accessed 29 Jun 2025]

Association of Professional Heritage Practitioners
info@aphp.org.za
www.aphp.org.za

<< archaeologists

ASSOCIATION OF SOUTHERN AFRICAN PROFESSIONAL ARCHAEOLOGISTS

This is to certify that:

Nic George Wiltshire

7902225066083

Having satisfied all requirements of the

Association of Southern African Professional Archaeologists

for certification and on 23 Feb 2026 been duly
registered by ASAPA as a

Professional Member

Designation valid from **01 Jun 2020** until **31 Mar 2024**



Appendix 2: Curriculum Vitae of bat specialist

Personal details	
Full Name	John Low de Vries
DOB	07-Nov-84
Nationality	South African
Marital Status	Married
Email	low@volantenvironmental.com
Phone	+27 82 323 5475
ID number	8 411 075 188 087
Education	
Completed	Degree and Institution
2002	Matric, Hoërskool Jeugland, Kempton Park, South Africa
2006	B. Sc Zoology, University of Pretoria, Pretoria, South Africa
2007	B. Sc (Hons) Zoology, University of Pretoria, Pretoria, South Africa
2014	PhD Zoology, University of Pretoria, Pretoria, South Africa
Key areas of expertise	
• Bat Specialist	Conducting surveys on bat diversity and abundance and research on bat ecology.
• Environmental Assessment Practitioner	Writing and collating Basic Assessment (BA) for proposed Wind Energy Facilities
Memberships & Certificates	
• SACNASP Registered Professional Natural Scientist in the field of Zoological Science - Registration Number: 124178	
• Bat Assessment Specialist with South African Bat Assessment Association (SABAA)	
Other Training	
• Multivariate statistical modelling (Cape Town, South Africa)	
• Bat handling and identification course (AfricanBats)	



<ul style="list-style-type: none"> Snake handling (Chameleon Village (South Africa)) ArcGis online course First Aid level 2 (Johannesburg, South Africa) 	
Publications	
Wood, M., de Vries, J.L. , Monadjem, A., Markotter, W. A critical review of factors influencing interspecific variation in home range size of bats. Mammal Review. <i>In submission</i>	
Markotter W, de Vries, J.L. , Paweska, J. 2022. Wing tattoos: A cost-effective and permanent method for marking bats. <i>In review</i>	
Geldenhuys, M., de Vries, J.L. , Dietrich, M., Mortlock, M., Epstein, J. H., Weyer, J., Paweska, J T., Markotter, W. Longitudinal surveillance of diverse coronaviruses within a <i>Rousettus aegyptiacus</i> maternal colony towards understanding viral maintenance and excretion dynamics. <i>In submission</i>	
Markotter, W., Coertse, J., de Vries, J.L. , Geldenhuys, M., Mortlock, M. 2020. Bat-borne viruses in Africa: A critical review. Journal of Zoology. 311:2. 77-98	
de Vries J.L. , Marneweck D, Dalerum F, Page-Nicholson S, Mills MGL, Yarnell RW, Sliwa A, Do Linh San E. 2016. A conservation assessment of <i>Proteles cristata</i> . In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.	
Dalerum F, Le Roux A, de Vries J.L. , Kamler JF, Page-Nicholson S, Stuart C, Stuart M, Wilson B, Do Linh San E. 2016. A conservation assessment of <i>Otocyon megalotis</i> . In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland, and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.	
Dalerum, F., de Vries, J.L. , Pirk, C.W.W., Cameron, E.Z. 2016. Spatial and temporal dimensions to the taxonomic diversity of arthropods in an arid grassland savannah. <i>Journal of Arid Environments</i> . 144. 21-30	
Kotze, R., Bennett, N., Cameron, E.Z., de Vries, J.L. , Marneweck, D.G., Pirk, C.W.W., Dalerum, F. 2012. Temporal patterns of den use suggest polygamous mating patterns in an obligate monogamous mammal. <i>Animal Behaviour</i> . 84. 1573-1578	
de Vries, J.L. , Pirk, C.W.W., Bateman, P.W., Cameron, E.Z., Dalerum, F. 2011. Extension of the diet of an extreme foraging specialist, the aardwolf (<i>Proteles cristata</i>). <i>African Zoology</i> . 6:1 194-196.	
de Vries, J. L. , Oosthuizen, M. K., Sichilima, A. M., Bennett, N. C. 2008. Circadian rhythms of locomotor activity in Ansell's mole-rat: are mole-rat's clocks ticking? <i>Journal of Zoology</i> . 276:4. 343-349	
Employment & work-related experiences	
2020 - present	Director and founder of Volant Environmental
2016 - present	Postdoctoral fellow, University of Pretoria
2015 - 2016	Postdoctoral fellow, NZG
2014 - 2015	Marion Island field assistant, University of Pretoria



2013	Documentary presenter, Oxford Scientific Films
2010 - 2011	Wildlife Education Trainer, Enviro- Insight
2010 - 2011	Game Raising Lecturer, Damelin Centurion
2009 - 2018	Lecturer and tutor, University of Pretoria
Conference Contributions	
Markotter W, de Vries, J.L. , Wood, M. 2022. Small scale movement of <i>Rousettus aegyptiacus</i> . International Bat Research Conference. Austin, Texas	
Infectious Diseases of Bats Symposium. Fort Collins, Colorado 2017. Body mass index of the Egyptian fruit bat, <i>Rousettus aegyptiacus</i> : An indicator of infection status. de Vries, J.L. , Dietrich, M., Paweska, J., Markotter, W.	
SASAS 2016. de Vries, J.L. , Jonker, M.L., Kriel, D., Kotze, A.K. The Tankwa goat: Phenotypically that different?	
De Beers Diamond Route Conference, 2010. de Vries, J.L. , Pirk, C.W.W., Bennett, N.C. Is the aardwolf a seasonally influenced optimal forager?	
Kimberley biodiversity research symposium, 2009. de Vries, J.L. , Bennett, N.C., Pirk, C.W.W., Dalerum, F., Cameron, E.Z. Den, and home range use of the aardwolf, <i>Proteles cristatus</i>	



Recent Project Experience

For further details please contact me directly at low@volantenvironmental.com

Time span	Nature of project	Capacity	Industry / Sector	Client / Developer	Country (Province)
2025-current	Maquassi ERA	Bat Specialist	Renewable Energy / Onshore Wind	AGV	South Africa (North West)
2025-current	Khangela WEF	Bat Specialist	Renewable Energy / Onshore Wind	ACED (Pty) Ltd	South Africa (Northern Cape)
2025-current	Ishwati WEF	Bat Specialist	Renewable Energy / Onshore Wind	ACED (Pty) Ltd	South Africa (Northern Cape)
2025-current	Umsinde WEF	Bat Specialist	Renewable Energy / Onshore Wind	ACED (Pty) Ltd	South Africa (Northern Cape)
2024-current	Uvemvane WEF	Bat Specialist	Renewable Energy / Onshore Wind	ABO Energy South Africa	South Africa (Mpumalanga)
2024-current	Mordant WEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	Cainmani	South Africa (Northern Cape)
2024	Castel WEF	Bat Specialist	Renewable Energy / Onshore Wind	Savannah (Pty) Ltd	South Africa (Northern Cape)
2024-current	Steeldrift WEF	Bat Specialist	Renewable Energy / Onshore Wind	EDF Renewables	South Africa (Mpumalanga)
2024	Deelkraal WEF	Bat Specialist	Renewable Energy / Onshore Wind	Cainmani	South Africa (Gauteng)
2024-current	Pretjiesberg WEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	Zutari	South Africa (Eastern Cape)
2024-2025	Mabele Emoyeni WEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	Sereti Green	South Africa (Free State)
2024-2025	Doringbaai South	Bat Specialist	Renewable Energy / Onshore Wind	WKN Windcurrent SA (Pty) Ltd	South Africa (Western Cape)
2023 - 2024	Unika WEF	Bat Specialist	Renewable Energy / Onshore Wind	Total Energies	Zambia (Eastern Province)
2023 - 2024	Pensulo WEF	Bat Specialist	Renewable Energy / Onshore Wind	Total Energies	Zambia (Central Zambia)



2023 - 2024	Rhenosterkop WEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	AGV	South Africa (Northern Cape)
2023 - 2024	Hotazel WE	Bat and Bird Specialist	Renewable Energy / Onshore Wind	AGV	South Africa (Northern Cape)
2023 - 2024	Buffelsfontein SEF	Bird Specialist	Renewable Energy / Onshore Wind	Cainmani	South Africa (Mpumalanga)
2023 - 2024	Stillfontein SEF	Bird Specialist	Renewable Energy / Onshore Wind	Cainmani	South Africa (Mpumalanga)
2023 - 2024	Roodepoort SEF	Bird Specialist	Renewable Energy / Onshore Wind	Cainmani	South Africa (Limpopo)
2023 - 2024	Kuske SEF	Bird Specialist	Renewable Energy / Onshore Wind	Cainmani	South Africa (Limpopo)
2023 - 2024	Komati WEF and SEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	WKN Windcurrent SA (Pty) Ltd	South Africa (Mpumalanga)
2023 - 2024	Three Provinces 1 SEF and WEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	Cainmani	South Africa (Mpumalanga)
2023 - 2024	Three Provinces 2 SEF and WEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	Cainmani	South Africa (Mpumalanga)
2023 - 2024	Brakdam WEF	Bat Specialist	Renewable Energy / Onshore Wind	Enertrag SA (Pty) Ltd	South Africa (Northern Cape)
2023 - 2024	Hartebees Skeur WEF	Bat Specialist	Renewable Energy / Onshore Wind	Enertrag SA (Pty) Ltd	South Africa (Northern Cape)
2023 - 2024	Brakputs WEF	Bat Specialist	Renewable Energy / Onshore Wind	Enertrag SA (Pty) Ltd	South Africa (Northern Cape)
2023 - 2024	Varsputs WEF	Bat Specialist	Renewable Energy / Onshore Wind	Enertrag SA (Pty) Ltd	South Africa (Northern Cape)
2023 - 2025	Daggakraal WEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	EDF Renewables	South Africa (Mpumalanga)
2023 - 2024	Imvubo SEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	Nextec	South Africa (KZN)



2023 - 2024	Ingagne SEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	Nextec	South Africa (KZN)
2023 - 2024	Camden WEF	Bird Specialist	Renewable Energy / Onshore Wind	EDF Renewables	South Africa (Mpumalanga)
2023 - 2023	Steelpoort SEF	Bird Specialist	Renewable Energy / Onshore Wind	Jones and Wagener	South Africa (Limpopo)
2023 - 2023	Tournee SEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	WKN Windcurrent SA (Pty) Ltd	South Africa (Mpumalanga)
2022 - 2023	Dubula SEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	CEN	South Africa (Eastern Cape)
2022	Dubula Greenfields SEF	Bat and Bird Specialist	Renewable Energy / Onshore Wind	CEN	South Africa (Eastern Cape)
2022	Tuinfontein Scoping survey	Bat and Bird Specialist	Renewable Energy / Onshore Wind	Akuo Energy	South Africa (Northern Cape)
2022	WEF Desktop surveys	Bat Specialist	Renewable Energy / Onshore Wind	Oryx Power	South Africa (Mpumalanga, Northern Cape, Eastern Cape)
2022	Langberg WEF Bat Scoping Survey	Bat Specialist	Renewable Energy / Onshore Wind	Akuo Energy	South Africa (Northern Cape)
2022	Thand Tau Bat Impact Assessment	Bat Specialist	Renewable Energy / Onshore Wind	Enertrag SA (Pty) Ltd	South Africa (Free State)
2022	Camden Bird Impact Assessment	Bird Specialist	Renewable Energy / Onshore Wind	EDF Renewables	South Africa (Mpumalanga)
2022	Hotazel WEF Scopin Survey	Bat Specialist	Renewable Energy / Onshore Wind	Jones and Wagener	South Africa (Northern Cape)
2022	Rhenosterkop WEF Scopin Survey	Bat Specialist	Renewable Energy / Onshore Wind	Jones and Wagener	South Africa (Western Cape)
2022-2023	Doringbaai WEF Bat Impact assessment	Bat Specialist	Renewable Energy / Onshore Wind	WKN Windcurrent SA (Pty) Ltd	South Africa (Western Cape)
2022	Castle WEF walkthrough	Bat Specialist	Renewable Energy / Onshore Wind	Savannah (Pty) Ltd	South Africa (Northern Cape)



2021	Fraserburg raptor nest survey	Bird specialist	Renewable Energy / Onshore Wind	WKN Windcurrent SA (Pty) Ltd	Renewable Energy / Onshore Wind
2021-2022	Dordrecht Bat Impact Assessment	Bat Specialist	Renewable Energy / Onshore Wind	ACED (Pty) Ltd	South Africa (Eastern Cape)
2021 - 2022	Indwe Bat Impact Assessment	Bat Specialist	Renewable Energy / Onshore Wind	Jones and Wagener	South Africa (Eastern Cape)
2021 - 2022	Waschbank Bat Impact Assessment	Bat Specialist	Renewable Energy / Onshore Wind	Jones and Wagener	South Africa (Eastern Cape)
2022 - 2023	Gorachouqua Bat Impact Assessment	Bat Specialist	Renewable Energy / Onshore Wind	Enertrag SA (Pty) Ltd	South Africa (Northern Cape)
2022 - 2023	Khoemana Bat Impact Assessment	Bat Specialist	Renewable Energy / Onshore Wind	Enertrag SA (Pty) Ltd	South Africa (Northern Cape)
2021 - 2022	Dalmanutha Bat Impact Assessment	Bat Specialist	Renewable Energy / Onshore Wind	Enertrag SA (Pty) Ltd	South Africa (Mpumalanga)
2020-2021	Bergvriervat Bat Impact Assessment	Bat Specialist	Renewable Energy / Onshore Wind	Genesis Eco-Energy Developments (Pty) Ltd	South Africa (Western Cape)
2020-2021	Botterblom Bat Impact Assessment	Bat Specialist Bird assistant	Renewable Energy / Onshore Wind	Genesis Eco-Energy Developments (Pty) Ltd	South Africa (Northern Cape)
2012	Dangerous snake removal	Herpetologist	Mining (Coal)	Anadarko	Mocimboa da Paia, Mozambique



Appendix 1: Specialist Qualifications







Personal Information:

- Date of Birth: 1969-11-13
- Nationality: South African
- Contact no: 082 922 9019
- Email: lourens@logis.co.za
- Web: logis.co.za

Years of Industry Experience

- 34 years'

Countries of Experience

- South Africa; Lesotho; Swaziland; Mozambique; Botswana; Zimbabwe; Namibia; Angola; Guinea; Ghana; Uganda; Madagascar; Saudi Arabia

Qualifications and Memberships

- BA (University of Pretoria) Geography and Anthropology (Majors), 1993
- Professional Geo-Information Sciences (GISc) Practitioner registered with the South African Geomatics Council (SAGC). Membership no. PGP0147
- Member: Geo-Information Society of South Africa (GISSA)

Key Skills and Competencies

- Arc/Info and ArcGIS
- Arcview
- QGIS
- Postflight Terra 3D
- PlanetGIS
- Vistapro
- Various GIS support applications
- Microsoft (Word/Excel/Access)

Professional Overview

Lourens provides professional **Geographical Information Systems (GIS)** services to a wide range of clients that require the processing, analysis and presentation of geospatial data. His overarching function is the application of GIS in environmental management and planning, impact assessments and spatial modelling, but his services often extend to a much broader range of business sectors. These include the application of GIS in:

- Agriculture
- Bulk service providers and utilities
- The renewable energy sector
- Electricity generation and distribution
- Mining and exploration
- Urban and rural development planning
- Conservation and tourism
- Strategic integrated planning
- Environmental education and social awareness
- Engineering, transport and infrastructure development

He is an accomplished **Visual Impact Assessment (VIA)** specialist who has successfully undertaken over 130 visual impact assessments for a wide variety of developments, ranging from mining, renewable energy facilities, power lines to roads and lodges.

Lourens has a multi-disciplinary approach to projects and therefore specialises in creating synergy between planning professionals and project specialists (regardless of the type of project) in order to provide uniform, quality spatial data products, solutions and services.

Experience and Expertise

- Data sourcing and acquisition
- Data capture and processing
- Data evaluation, conversion and transfer
- Geodatabase development/implementation/maintenance
- System design and development
- Spatial analysis/modelling (visibility, slope, aspect, etc.)
- Digital terrain modelling
- Terrain evaluation and site screening
- Image processing and analysis
- Impact assessment and impact management
- Environmental management
- GIS-based decision support systems development
- Project management and report writing
- Map production, display, queries and reporting
- Environmental sciences expertise
- Process development
- Visual impact assessment
- GPS fieldwork and aerial surveys
- Drone data processing

Project Experience

Miscellaneous projects *(A brief description of some prominent and relevant projects)*

GIS mapping and database for Black Eagle habitats and flight patterns in the Karoo National Park

Environmental planning and development control schemes for the Drakensberg Babangibone, Cathkin Peak and Garden Castle development nodes

Goukou River (Stilbaai) Environmental Structure Plan

Conservation and open space proposals for the Umhlanga Forest

Grootvlei mine water pumping operation (Blesbokspruit sub-catchment)

GIS services for the Saldanha steel plant

ENPAT Provincial (1:250,000 scale GIS decision support systems) based on an inventory of environmental and socio-economic geographical data

- ENPAT Northern Province (Limpopo Province)
- ENPAT Mpumalanga
- ENPAT North-West

ENPAT Metropolitan (1:50,000 scale GIS decision support systems) containing environmental and socio-economic geographical data that were evaluated for conservation opportunities, development constraints and agricultural constraints

- ENPAT Gauteng
- ENPAT Cape Town
- ENPAT Durban Functional Region (DFR)
- ENPAT Bloemfontein/Botshabello
- ENPAT Port Elizabeth

ENPAT National (1:1,000,000 scale GIS decision support system) and ENPAT publication

Environmental Management Frameworks (EMF). Frameworks of spatially represented information connected to environmental management parameters designed to aid in the pro-active identification of potential conflict between development proposals and critical and/or sensitive environments

- EMF Northern Province (Limpopo Province)
- EMF Mpumalanga
- EMF North-West

Spatial Development Initiatives (SDI). The fast tracking of the EMF concept for priority SDI's

- Lubombo Corridor SDI
- Coega Industrial Development Zone (IDZ)
- Wild Coast SDI
- West Coast Investment Initiative

Sigma colliery: North-West strip operation

Development masterplan for the Tswaing Crater Museum

Conservation plan for the Rietvlei Nature Reserve

GIS services for the planning and management of the Chobe National Park (Botswana)

GIS services for an environmental overview of South Africa

Demarcation/delineation of regions in South Africa

Orange-Vaal (ORVAAL) transfer scheme - Caledon cascades scheme

ENPAT Provincial (1:250,000 scale GIS decision support systems) based on an inventory of environmental and socio-economic geographical data

- ENPAT Eastern Cape
- ENPAT Free State
- ENPAT Kwa-Zulu Natal

Environmental Management Frameworks (EMF). Frameworks of spatially represented information connected to environmental management parameters designed to aid in the pro-active identification of potential conflict between development proposals and critical and/or sensitive environments

- EMF Eastern Cape
- EMF Free State
- EMF Kwa-Zulu Natal

Hennops River EMF (environmental inventory and management proposals in Centurion)

The Important Bird Areas (IBA) of South Africa map and database

Centurion Metropolitan Substructure Environmental Management Framework (EMF)

Alexandra renewal project EMF

Carbon Sinks and Sequestration - Eastern Cape Wild Coast. Information maps for the "Carbon Sinks - A Rehabilitation Option for South Africa's Natural Environment" report

Prince Edward and Marion Islands. Maps for the World Heritage Site (WHS) bid document

Theewaterskloof and Genadendal - Integrated spatial data management system

Gauteng Communication Network Strategy (GAUCONS). Environmental zones for the control of the construction of telecommunication structures

Gauteng Industries Buffer Zones. The mapping of industrial and mining activities, the creation of buffer control zones and the development of a GIS-based decision support system for the Gauteng Province

Limpopo National Park (LNP) Mozambique. Base maps for fieldwork and planning

Schmidtsdrift Environmental Management Program Report (EMPR)

Loch Vaal Environmental Management Framework (EMF)

Rustenburg - Strategic Environmental Assessment (SEA). The creation of environmental control zones, a GIS-based decision support system and information poster

Faerie Glen Nature Reserve Strategic Environmental Assessment (SEA)

Willow Quarries - Environmental Impact Assessment (EIA). Modelling of mining expansion plan and the potential impact on Golden Mole habitats

Ekurhuleni Metropolitan Municipality (EMM) Environmental Management Framework (EMF)

Limpopo - State of the Environment Report (SoER)

Windhoek (Namibia) - Environmental Structure Plan (ESP)

Gauteng Supplementation and Implementation of EIA Regulations Project (EIA SIP)

Siyanda District Municipality Environmental Management Framework (EMF)

Olifants and Letaba River Catchments Environmental Management Framework (EMF)

Barberton Nature Reserve environmental sensitivity mapping and land use zoning plan

Kapama Private Game Reserve map

Gauteng EMF and landscape character assessment

Majuba CCGT environmental screening

MTPA Nature Reserves (Manyeleti, Mthethomusha, Mkombo, Mdala, Mabusa and Loskop) Integrated Management Planning (IMP)

Ugu District Municipality EMF and landscape character assessment

Greater Lakenvlei Protected Environment resource mapping

North West (Coetzersdam, Pomfret, Buxton, Taung Station, Pudimoe, Lotlhakane Village and Delareyville) environmental sensitivity mapping for PV facilities

Bayside Aluminium Smelter Water Use License Application

CESVI (African Ivory Route) resource mapping for Nthubu, Blouberg, Mutale Falls, Funduze, Modjadji, Baleni, Mtomeni, Mafefe and Manyeleti Camps

Master Plan for Kaloum and Loose Islands, Conakry, Guinea

Ekurhuleni Open Space mapping

Kumba Heuningkranz and Kolomela mines concept study

Joburg Property Company land strategy – inner city transformation roadmap

Bioregional Plan for the Mopani District

N2 Corridor Strategic Corridor Development Plan and landscape character assessment

Polokwane outfall sewer route and waste water treatment works

Ghana Northern Regions environmental overview

Rand Water disaster risk assessment

Redstone Solar Thermal Power Plant environmental sensitivity mapping

Landscape/Land use character maps for Ladysmith and Estcourt, Durban and Pietermaritzburg, Newcastle and Dundee

Oil and Gas Industrial Park, Hoima District, Uganda

Waterberg District EMF

Boegoebaai Port Development environmental screening

Lonmin Marikana Mining Operations environmental overview

Moses Kotane Local Municipality Integrated Environmental Management Plan

Vhembe District Bioregional Plan

Capricorn District Bioregional Plan

Sekhukhune District Bioregional Plan

Tourist maps for 12 provincial nature reserves in Limpopo

Afgri Grain Management spatial database

Eskom land cover and Isopleths (SO₂)

Gamma-Kappa transmission line corridors GIS and mapping

Nseleni Independent Floating Power Plant GIS and mapping

Regional Strategic Environmental Assessments (Regional Assessments)

Regional assessment for the Eskom Wind Energy Facility (Sere) in the Western Cape

Regional assessments for the Eskom Wind Integration Project (WIP)

- Area 1: West Coast (Saldanha to Garies)
- Area 2: Overberg Region

-
- Area 3: Beaufort West region
 - Area 4: Eastern Cape (Tsitsikamma to Port Elizabeth)
 - Area 5: Northern Cape (Hondeklipbaai to Port Nolloth)

Sandveld Wind Energy Regional Assessment

West Coast National Park (Saldanha area) Regional Assessment

Regional Assessment for the Theewaterskloof Municipal area

Brand-se-Baai (Exxaro) wind energy regional assessment

Overberg (BioTherm) wind energy regional assessments

- Area 1: Gordons Bay to Pearly Beach
- Area 2: Napier RA (Agulhas NP/Swellendam region)

Suurplaat/Sutherland (Investec Wind Energy Development) Regional Assessment

Waterberg (Limpopo) Concentrating Solar Power (CSP) Regional Assessment (Exxaro)

Western Cape Province Regional SEA for Wind Energy Facility developments

ISS Global Mining Regional SEA for Power Station Developments in Mpumalanga Province

Northern Cape Province Regional SEA for Wind Energy Facility developments

Bosjesmansberg Regional SEA for solar PV projects

Delmas Regional SEA for Power Station Developments in Mpumalanga

Limpopo Regional SEA for solar PV projects

Slangkop Regional SEA for Wind Energy Facility developments

Bakenskop, Trouberg and Harpuisberg Regional SEA for WEFs

Wolf Wind (Addo Elephant NP) regional assessment

Nelson Mandela Bay Metropolitan Municipality SEA for WEFs

Umuziwabantu Local Municipality SEA

Visual Impact Assessments (VIA), viewshed analyses and visual assessments

- Coal strip mining in Zimbabwe viewshed analyses
- Viewshed analyses and sensitivity mapping for telecommunication masts in the northern provinces (Limpopo, Mpumalanga and North-West)
- Siemens 3rd license cellular communications infrastructure EIAs. Viewshed analyses and sensitivity mapping for over 4,000 telecommunication mast sites in all major metropolitan areas of South Africa.
- CSIR high mast viewshed analysis and sensitivity mapping

-
- Atlantis Open Cycle Gas Turbine power station VIA
 - Kynoch Gypsum Tailings dam extension VIA
 - N1 Western Bypass Shell service station VIA
 - Coega regional hazardous waste processing facility VIA
 - Robinson Deep landfill extension VIA
 - Hazardous waste blending platform VIA
 - Mercury-Ferrum-Garona transmission line integration VIA
 - Matimba B (Medupi) coal-fired power station VIA
 - Concentrating Solar Power (CSP) plant in Upington VIA
 - Zeus to Mercury transmission line (comparative viewshed analyses)
 - Mmamabula (Botswana) transmission line and power station viewshed analyses
 - Petronet new multi-products pipeline VIA
 - Wind energy facility (Sere) in the Western Cape province VIA
 - Ankerlig power station conversion and transmission line VIA
 - Gourikwa power station conversion and transmission line VIA
 - Kyalami strengthening project VIA
 - Steelpoort integration project VIA
 - Medupi reservoir and telecommunication mast VIA
 - VIA's for Basic Assessment Reports (wind monitoring masts)
 - Cookhouse, Hopefield, Amakhala, Caledon, Worcester, Tulbach, Overberg, Britannia Bay, Brand-se-Baai, Deep River, Happy Valley, River Bank, Uiekraal, Beaufort West, Laingsburg, Rhebokfontein, Suurplaat and West Coast
 - Cookhouse wind energy facility VIA
 - Hopefield wind energy facility VIA
 - Mokopane Integration Project VIA
 - Cradle of Humankind World Heritage Site (WHS) viewshed protection zone, visual character assessment and visual zonation plan
 - Indwe wind energy facility VIA
 - Amakhala wind energy facility VIA
 - Boontjieskraal wind energy facility VIA
 - Britannia Bay wind energy facility VIA
 - Brand-se-Baai wind energy facility VIA
 - Upington and Pofadder solar thermal facilities VIAs
 - Dorper wind energy facility VIA
 - Flagging Trees wind energy facility VIA
 - Rhebokfontein, Suurplaat and West Coast wind energy facilities VIAs
 - Riverbank wind energy facility VIA
 - Waterberg photovoltaic plant VIA
 - Eskom wind intergration projects VIAs
 - Welgedacht water care works VIA
 - Aberdeen wind energy facility
 - Aggeneis-Oranjemund power line integration
 - Project Blue wind energy facility
 - Inca De Aar solar energy facility
 - Aced De Aar solar energy facility
 - Exxaro Lephalale solar energy facility
 - Happy Valley wind energy facility
 - Hendrina power station ash dam extension
-

-
- Hidden Valley wind energy facility
 - Kakamas photovoltaic plant
 - Karoo renewable energy facility
 - Ilanga (Karoskraal) solar thermal power plant
 - Keimoes photovoltaic plants (Sonnenberg, Ofir and Geelkop)
 - Kimberley photovoltaic solar plant
 - Kleinbegin photovoltaic plant
 - Kleinzee wind energy facility
 - Koingnaas wind energy facility
 - Kabi Vaalkop (Orkney) PV solar energy facility
 - Oyster Bay wind energy facility
 - Ilanga Lethemba (Paardevelei) PV solar energy facility
 - Uppington photovoltaic solar facility
 - Ramphela (Ritchie) PV solar energy facility
 - Rodicon PV solar energy facility
 - Ruukie (Mpumalanga) coal fired power station
 - Saldanha Steel wind energy facility
 - Kathu, Sishen and San Solar PV solar energy facilities
 - Christiana, Morgenzon and Hertzogville PV solar energy facilities
 - Namaqua and Voëlkip PV solar energy facilities
 - Denhami (Struisbaai) wind energy facility
 - Spitskop wind energy facility
 - Tsitsikamma community wind energy facility
 - Uyekraal wind energy facility
 - Veldrift and Saldanha wind energy facilities
 - Vredendal photovoltaic solar energy facility
 - Wag'nBiekiespan solar energy facility
 - Walker Bay wind energy facility
 - Riemvasmaak (Augrabies) hydroelectric facility
 - Bosjesmansberg solar energy facility
 - Everest, Grootkop, Watershed and Oryx PV solar energy facilities
 - Garob to Kronos power line
 - Graafwater PV solar energy facility
 - Kgabalatsane solar energy facility
 - Kheis solar park project
 - Gihon and Kison solar energy facilities
 - New Dimensions PV solar park in Mafikeng
 - Goereesoe (Outeniqua) wind farm
 - Burchell, Cuprum to Mooidraai power line
 - Rheboksfontein WEF power line
 - Ruuki power station
 - Sirius Solar PV projects
 - Tiger solar energy facility
 - Uyekraal WEF
 - Velddrif WEF
 - Zen WEF
 - Zoutpan (Olifants River) WEF
 - Gunsfontein and Stormberg WEFs

-
- Aberdeen WEF
 - Albertinia WEF
 - Exxaro Baseload Power Station Lephalale
 - Blue Wave (Wolmaransstad) PV SEF
 - Castle WEF
 - East Power Line (Hotazel)
 - Elliot WEF
 - Exheredo Renewable Energy projects
 - Kareebosch WEF
 - Koeberg to Ankerlig Power Line
 - Mainstream Pofadder renewable energy facility
 - Stuart Coal Weltevreden coal mine
 - Transalloys Coal-fired power plant
 - Colenso Power Station and Mine
 - Lonmin Mooinooi landfill extension
 - Metsimatala Concentrating Solar Power facility
 - Matjhabeng PV Solar Energy Facility
 - Modderfontein Solar Thermal PV Plants (Ekhurhuleni)
 - iSimangaliso Wetland Park viewshed analysis
 - Melkspruit substation to Rouxville substation power line
 - Muhlava mine
 - Tina Falls hydropower project
 - Boulders Wind Farm
 - Allepad PV 1- 4 SEFs
 - Lichtenburg PV 1 - 3 SEFs
 - Namas and Zonnequa WEFs and overhead power lines
 - Wobben wind energy converter
 - Haga Haga WEF
 - Hyperion power line
 - Jagdlust overhead power lines and substation
 - Ilanga (Karoshoek) Solar Park
 - Calodex PV SEF
 - Kolkies and Sadawa PV SEFs
 - Kotulo Tsatsi PV SEFs
 - CBE WEF near Toalagnaro in Madagascar
 - Richards Bay Gas to Power Project
 - Grid connection infrastructure for the Frontier Power Gas to Power Project
 - Vrede and Rondavel PV SEFs
 - Vygenhoek Platinum Mine
 - Various comparative viewshed analyses and reviews for Part 2 Amendments

Professional History

4/2017: Professional GISc and VIA Practitioner (sole proprietor/self-employed)

1/2016 – 3/2017: SMEC South Africa, Pretoria – Technical Specialist

11/1999 – 12/2015: MetroGIS (Pty) Ltd, Pretoria – Director

10/1997 – 10/1999: GISBS (GIS Business Solutions - Q Data Consulting) – Project Manager

4/1990 - 9/1997: GisLAB CC (GIS Laboratory - University of Pretoria) – Member / Project Manager

Courses & Conferences attended

1997 ESRI International User Conference – United States of America

Publications & Papers presented

Name: Gateway to Kruger Map and Guide

Authors: Andy Tinker Photography

Publisher: ATP Publishing

Date: 2010

Name: Kruger National Park Map and Photographic Guide

Authors: Andy Tinker Photography

Publisher: ATP Publishing

Date: 2007

Name: Lowveld and Kruger Guide

Authors: High Branching Team

Publisher: Jacana Media (Pty) Ltd

Date: 2004

Name: Heights to Homes to Oceans (H2O) Water Wise information poster

Authors: Rand Water

Publisher: Rand Water

Date: 2004

Name: Garden Route - Still Bay to Storms River (Discover the Magic)

Authors: Jacana

Publisher: Jacana Media (Pty) Ltd

Date: 2003

Name: KwaZulu-Natal - A celebration of biodiversity

Authors: Jacana

Publisher: Jacana Media (Pty) Ltd

Date: 2001

Name: Pilanesberg Official Map and Park Guide

Authors: North-West Parks & Tourism Board and Jacana

Publisher: Jacana Media (Pty) Ltd

Date: 2001

Name: ESRI Map Book (Volume 13)

Authors: Various

Publisher: Environmental Systems Research Institute (ESRI)

Date: 1998

Name: Environmental Potential Atlas for South Africa

Authors: W. van Riet, J. van Rensburg, P. Claassen, L. du Plessis and T. van Viegen

Publisher: J.L. van Schaik

Date: 1997

Awards

Award: Best South African Environmental Technical Paper

Awarded for: Environmental Potential Atlas for South Africa (Publication)

Awarded by: Environmental Planning Professions Interdisciplinary Committee (EPPIC)

Date: 1998

Award: QDC Performance Award

Awarded for: ENPAT Development

Awarded by: Q Data Consulting

Date: 1998

Award: Best Cartographic Map Gallery Competition - 3rd Place

Awarded for: Environmental Potential Atlas for South Africa (Publication)

Awarded by: Environmental Systems Research Institute (ESRI)

Date: 1998 International ESRI User Conference

Award: Map Gallery Most Analytical Competition - 3rd Place

Awarded for: Environmental Potential Atlas for South Africa

Awarded by: Environmental Systems Research Institute (ESRI)

Date: 1997 International ESRI User Conference

Award: Best South African Environmental Technical Paper

Awarded for: National Environmental Potential Atlas (ENPAT National)

Awarded by: Environmental Planning Professions Interdisciplinary Committee (EPPIC)

Date: 1995

Language Skills

Mother Tongue:	Afrikaans		
Languages	Speak	Read	Write
English	Good	Good	Good
Afrikaans	Good	Good	Good



Lourens du Plessis (PrGISc)



Universiteit van Pretoria

Die Raad en die Senaat verklaar hiërmee dat die graad

Baccalaureus Artium

met al die regte en voorregte daaraan verbonde by geleentheid van
'n kongregasie van die Universiteit toegeken is aan

LOURENS MARTINUS DU PLESSIS

kragtens die Wet en Statuut van die Universiteit

Namens die Raad en die Senaat

Visekanselier en Rektor

Namens die Fakulteit
Lettere en Wysbegeerte

Dekaan



Registateur

1993-12-02

THE SOUTH AFRICAN COUNCIL FOR
PROFESSIONAL AND
TECHNICAL SURVEYORS



DIE SUID AFRIKAANSE RAAD VIR
PROFESSIONELE EN
TEGNIESTE OPMETERS

CERTIFICATE OF REGISTRATION SERTIFIKAAT VAN REGISTRASIE

This is to certify that

Hiermee word gesertifiseer dat

Laurens Martinus du Plessis

was registered as a

geregistreer is as 'n

PROFESSIONAL GISc PRACTITIONER

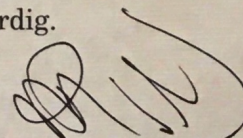
on the 11th day of July 2011

op die 11^{de} dag van Julie 2011

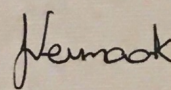
in accordance with the provisions of the Professional and Technical Surveyors' Act, 1984 (Act No 40 of 1984) and is entitled to carry on his/her profession or calling in any part of the Republic of South Africa in terms of the said Act and rules framed thereunder.

ingevolge die bepalings van die Wet op Professionele en Tegniese Opmeters, 1984 (Wet nr 40 van 1984) en geregtig is om sy/haar beroep of nering in enige deel van die Republiek van Suid-Afrika te beoefen ingevolge die genoemde Wet en reëls daarvolgens uitgevaardig.

Issued under the Seal of the Council
Uitgereik onder die Seël van die Raad


President

Registration Number
Registrasienommer **PGP 0147**


Registrar
Registrateur

IRIS SIGRID WINK * iWink Consulting (Pty) Ltd * Curriculum Vitae



Profession	Civil Engineer (Traffic&Transport)
Qualification	MSc Eng (Civil & Transport), Germany PrEng 20110156
Area of Specialisation	* Traffic & Transportation Engineering * Renewable Energies * Road Safety Auditing and Advise
Years of Experience	~23 Years
Quote to live by	"One day at a time."

SUMMARY OF EXPERIENCE

I am a Professional Engineer registered with ECSA (20110156) and obtained my Master of Science degree in Civil Engineering in Germany in 2003. I am highly skilled in providing traffic and transport engineering advise and have more than 23 years of experience in a wide field of traffic and transport engineering projects in Southern Africa and Germany.

My passion is renewable energy, being involved in the renewable energy market for almost 20 years and having conducted a substantial number of traffic and transport studies.

A further interest of mine is road safety, as I see it as a vital part of every construction project.

I am registered with the International Road Federation Washington as a Global Road Safety Audit Team Leader and am a speaker at conferences and seminars.

SUMMARY OF EXPERIENCE

1996 – Matric (Abitur)	Carl Friedrich Gauss Schule, Hemmingen, Germany
1998 - Diploma (Draughtsperson)	Lower Saxonian State Office for Road Engineering
2002 – BSc Eng (Civil)	Leibniz Technical University of Hannover, Germany
2003 - MSc Eng (Civil & Transport)	Leibniz Technical University of Hanover, Germany.

iWink Consulting (Pty) Ltd – Independent Consultant

2022 – present

Position: Independent Consultant – working as an independent Specialist in the field of Traffic & Transport Engineering, Renewable Energies and Road Safety.

JG Afrika (Pty) Ltd (Previously Jeffares & Green (Pty) Ltd)

2016 – 2022

Position: Associate / Division Head: Traffic & Transport Engineering

Jeffares & Green (Pty) Ltd

2012 – 2016

Position: Senior Traffic & Transport Engineer

Arup (Pty) Ltd

2010 - 2012

Position – Senior Traffic & Transport Engineer

Arup (Pty) Ltd

2004 - 2010

Position – Traffic & Transport Engineer

Schmidt Ingenieurbüro, Hannover, Germany

2000

Position – Engineering Assistant

Leibniz University of Hannover, Germany

2000 - 2003

Position – Engineering Researcher - Institute for Road & Railway Engineering

PROFESSIONAL REGISTRATION & ASSOCIATIONS

PrEng	Registered with the Engineering Council of South Africa No. 20110156 Registered Mentor with ECSA
MSAICE	Member of the South African Institution of Civil Engineers
SAWEA	Member of the South African Wind Energy Association
SARF	South African Road Federation: Committee Member of National Council
SARF WR	South African Road Federation: Committee Member of the Western Region
SARF RSC	South African Road Federation National: Member of the Road Safety Committee
IRF	Registered as Global Road Safety Audit Team Leader

Further Information

Available at request



Khuthadzo Bulala

Earth & Environment, Mine Waste, Geotechnical & Engineering Services –
Senior Consultant

CAREER SUMMARY

Khuthadzo Bulala is an Engineering Geologist with 8 years' experience in geotechnical investigations. Her experience and technical skills include:

- Compilation of geotechnical investigation reports
- Geotechnical core logging
- Core orientation for inclines boreholes
- Planning, managing, and executing in-situ testing (test-pitting, geotechnical drilling operations, DCP testing and piezometer installations) for geotechnical investigations
- Laboratory testing selection and liaison with laboratories
- Analysis and interpretation of laboratory and in-situ test data
- Geological mapping and sourcing of construction materials and aggregates
- Sourcing, testing and specification of construction materials and aggregates
- Health and safety documentation for fieldwork projects
- Project management including resource management and client liaison

4 years with WSP

Area of expertise

Geotechnical Investigations
Geotechnical Core Logging
Geotechnical Report Writing
Laboratory Sampling Selection
Geological Mapping
H&S Documentation
Project Management

10 years of experience

Language

English – Fluent
Tshivenda – Fluent

EDUCATION

BSc. (Honours) in Geological Sciences, University of Limpopo South Africa	2013
BSc. Degree in Geological Sciences, University of Johannesburg (Auckland Park Campus)	2011

ADDITIONAL TRAINING

Civil Engineering and Renewable Energy, Geopile Africa	2020
Geotubes and Dewatering, Kaytech	2019
Site Monitoring Workshop, JG Afrika	2019



Khuthadzo Bulala

Earth & Environment, Mine Waste, Geotechnical & Engineering Services –
Senior Consultant

ArcGIS1, Introduction to Geographic Information System, JG Africa

2018

PROFESSIONAL MEMBERSHIPS

South African Council for Natural Professions – Pr. Sci Nat Member No. 116482

2021

PROFESSIONAL HISTORY

WSP Group Africa (Pty) Ltd

September 2021 – present

JG Afrika (Pty) Ltd

September 2016 – September 2021

Lesotho Highlands Development Agency (LHDA)

March 2016 – August 2016

PROFESSIONAL EXPERIENCE

Geotechnical Investigations

Ib vogt (Pty) Ltd, Ngonyama Solar Energy Facility Detailed Geotechnical Investigation, Bloemfontein, Free State, South Africa

March 2023 – ongoing

Engineering Geologist

Field investigation including test pitting, DCP and sampling and report writing.

South32 Mamatwan Mine, Tailings Storage Facility Geotechnical Investigation, Hotazel, Northern Cape, South Africa

January 2023 – ongoing

Engineering Geologist

Field investigation including test pitting, sampling and report writing.

Sasol Secunda Operations, Inside Ash Geotechnical Inside Ash Seepage Analysis, Secunda, Mpumalanga, South Africa

October 2022 – Ongoing

Geotechnical Desktop Study

Gap analysis and additional investigation executions plans for Inside Ash Seepage Analysis.

Enertrag South Africa (Pty) Ltd, Impumelelo Wind Energy Facility Geotechnical Desktop Study, Secunda, Mpumalanga, South Africa

October 2022 – January 2023

Field Engineering Geologist

Field investigation including test pitting, DCP and sampling. Report writing and foundation recommendation.

Enertrag South Africa (Pty) Ltd, Mukondeleli Wind Energy Facility Geotechnical Desktop Study, Secunda, Mpumalanga, South Africa

October 2022 – December 2022

Field Engineering Geologist

Field investigation including test pitting, DCP and sampling. Report writing and foundation recommendation.

Enertrag South Africa (Pty) Ltd, Vhuvhili Solar Energy Facility Geotechnical Desktop Study, Secunda, Mpumalanga, South Africa

June – August 2022

Project Management and Client Liaison



Khuthadzo Bulala

**Earth & Environment, Mine Waste, Geotechnical & Engineering Services –
Senior Consultant**

Geotechnical desktop study for the Vhuvhili Solar Energy Facility and the associated structures to supplement a project Environmental Impact Assessment.

Enertrag South Africa (Pty) Ltd, Vhuvhili Solar Energy Facility Detailed Geotechnical Investigation, Secunda, Mpumalanga, South Africa

October 2020 – July 2021

Field Engineering Geologist

Field investigation including test pitting, DCP and sampling. Report writing and foundation recommendation.

Scaw South Africa (Pty) Ltd, Union Junction Hill Borrow Pit Geotechnical Investigation, Johannesburg, South Africa

February 2022 – May 2022

Project Management and Client Liaison

Geotechnical investigation for clay lining material that is needed for the development of the landfill site for their operations and

ArcelorMittal Mine Extensions, Geotechnical Investigation, Tokadeh, Liberia

January 2022

Geotechnical Report Writing

For the ArcelorMittal facilities; Tokadeh pit, Tokadeh infrastructure, Gangra Pit, Water Storage Dam, Tailings Management Facility, and Buchanan Port.

Debswana Diamond Company, Debswana Mine Facilities, Central District, Botswana

November 2021

Geotechnical Desktop Study

Gap analysis and additional investigation executions plans for Damtshaa, Orapa and Letlhakane mine facilities.

Lesotho Highlands Development Agency (LHDA), Polihali Dam, the Diversion Tunnel and the Transfer Tunnel, Tlokeng, Lesotho

March 2016 – December 2017

Site Supervision

Drilling, water pressure tests, installation of piezometers, rotary core logging for the dam site, the saddle dam, the coffer dam, the diversion tunnel, the Katse Dam transfer tunnel and the proposed borrow pits.

Calvus Properties (Pty) Ltd, Rietfontein Dam, Eastern Cape, South Africa

May 2019 – September 2021

Project Manager

Trial pitting for the dam foundation, spillway construction and the construction material at the site. Evaluation of engineering properties of subsurface material. Geotechnical reporting for dam design purposes. Geotechnical investigation and reporting for construction material borrow pits.

Umgeni Water, Darvil Dam, Pietermaritzburg, Kwa-Zulu Natal, South Africa

August 2018 – December 2018

In-Situ Investigation

Including test pitting for geotechnical soil profiles of the proposed dam site to determine the dam foundation depth. Project management and selection of laboratory tests for study objectives subsequent to the fieldwork. Compilation of a geotechnical report for the dam design and for the construction material.

Sivest SA (Pty) Ltd, Gluckstadt Water Supply Scheme, Tugela Ferry, Kwa-Zulu Natal, South Africa

November 2019 – March 2020

Field Geologist



Khuthadzo Bulala

**Earth & Environment, Mine Waste, Geotechnical & Engineering Services –
Senior Consultant**

Evaluation along the proposed water supply pipeline, at the proposed borehole structures and at the proposed reservoir. Assessment of geotechnical properties of potential bedding material for construction. Ntabamhlophe Tank –Responsible for the field investigation and the report writing for the proposed tank.

**JG Afrika Water Division, Ntabamhlophe Tank, Wembezi, Kwa-Zulu Natal, South Africa
January – April 2021**

Project Manager and Client Liaison

Field investigation including test pitting and sampling. Report writing and foundation recommendation. Foundation assessment during construction.

**Scatec Solar South Africa, Kenhardt Solar Farm, Kenhardt, Northern Cape, South Africa
October 2020 - July 2021**

Project and Subcontract Management

Drilling supervision, in-situ investigation for site characterization. Management and selection of laboratory tests for study objectives. Client liaison and geotechnical report for pylon foundations, substation foundation and access road construction.

**Enertrag SA (Pty) Ltd, Dalmanutha Wind Energy Facility, Belfast, Mpumalanga, South Africa
December 2021 – May 2022**

Project Manager and Client Liaison

Geotechnical desktop study for three wind energy facilities and their associated structures to supplement a project Environmental Impact Assessment.

**G7 Renewable Energies (Pty) Ltd, Oya and Yemaya Solar and Wind Energy Facility, Maitjiesfontein, Western Cape, South Africa
August 2019 – July 2020**

Geotechnical Desktop Study Reports

For the two sites for the two solar sites. Test pitting and sample selection for required tests for the Oya site. Analysing and interpreting fieldwork data and laboratory results.

**Sivest SA (Pty) Ltd, Client, Koup 1 and Koup 2 Wind Energy Facility, Leeu Gamka, Western Cape, South Africa
February 201 – July 2021**

Project Manager and Client Liaison

Geotechnical desktop study for two wind energy facilities and their associated structures to supplement a project Environmental Impact Assessment.

**WSP Africa, Client, Three Wind Energy Facilities, Northern and Western Cape, South Africa
May – September 2021**

Project Manager and Client Liaison

Project management and client liaison. Geotechnical desktop studies for the proposed Brandvalley, Karreebosch and Rietkloof wind farm energy facilities and three 33kV powerlines and their associated structures.

**WSP Africa Group, Uvuvuselela Railway Line Extensions, South Africa
October 201 – December 2021**

Project Manager and Client Liaison

Geotechnical desktop studies for the proposed Transnet Railway Loop extensions, Port Elizabeth Port extensions and loading yards in Gauteng.

**South African National Road Agency Limited, N2 Pongola to Kangela, Kwa-Zulu Natal, South Africa
2017 – 2021**

Field Geologist



Khuthadzo Bulala

**Earth & Environment, Mine Waste, Geotechnical & Engineering Services –
Senior Consultant**

Responsible for trial pitting, logging, and sample collection for laboratory analysis for the N2 construction borrow pits. Collation of field data and laboratory data.

HHO Consulting Engineers, N3 Borrow Pits, Kwa-Zulu Natal, South Africa

November 2018 – April 2019

Field Engineering Geologist

Rotary core logging and percussion chips logging for the proposed borrow pits located between Durban and Pietermaritzburg for the N3 construction.

ZVK Holdings (Pty) Ltd Mfulamuni Access Road and Aggregates, Pomeroy, Kwa-Zulu Natal, South Africa

January – June 2022

Project Manager and Client Liaison

Fieldwork for the realignment and the re-gravelling of the Mfulamuni access road. Ensuring adequate laboratory testing for the road and the potential borrow pits. Report compilation for the road and the material investigation.

Naidu Consulting, P77 Culverts, Dududu, Kwa-Zulu Natal, South Africa

January – July 2020

Project Manager and Client Liaison

Responsible for trial pitting, logging and DPL testing to determine the subsurface characteristics for the proposed seven culverts. Compilation of an interpretive geotechnical report highlighting the foundation depths for each culvert and the geotechnical constraints thereof.

Royal HaskoningDHV, Kikwood to Addo Borrow Pit and Retaining Walls, Kirkwood, Eastern Cape, South Africa

April – December 2019

Project Manager and Client Liaison

Soil profiling and interpretation of the field profiles and laboratory results for the borrow pit and retaining walls. Material volume calculations for the borrow pits. Dynamic cone penetration and interpretation for the competent foundations for the retaining walls. Data assimilation and assessment for report writing.

High End Construction, Eastwood Pedestrian Bridge, Pietermaritzburg, Kwa-Zulu Natal, South Africa

February – May 2019

Project Manager and Client Liaison

Construction of a pedestrian bridge. Fieldwork including test pitting and DPL testing. Analysing and interpreting the field data to recommend foundation levels.

Eskom, Refurbishment of 9 Eskom Towers, Eastern Cape, South Africa

August 2019 – September 2019

Engineering Geologist

Test pitting for geotechnical ground profiles of each site. Management and selection of laboratory tests for study objectives. Foundation recommendations for each site. Geotechnical report for design purposes.

KZN Department of Public Works, Nkweletsheni Primary School, Richmond, Kwa-Zulu Natal, South Africa

January – March 2020

Project Manager and Client Liaison

School refurbishment. Test pitting, percolation testing and DPL testing for geotechnical ground profiles of the site. Management and selection of laboratory tests for study objectives. Geotechnical report for foundations, recommendations for the soak-away and for the multipurpose sports ground.

JG Afrika (Pty) Ltd Water Department, Zwelisha Moyeni Water Treatment Works, Bergville, Kwa-Zulu Natal, South Africa



Khuthadzo Bulala

**Earth & Environment, Mine Waste, Geotechnical & Engineering Services –
Senior Consultant**

January – March 2021

Project Manager and Client Liaison

Test pitting and DPL testing for geotechnical ground profiles of the site. Management and selection of laboratory tests for study objectives. Geotechnical report for foundations of treatment works structure founded at depth of 4-5m below NGL.

**JG Afrika (Pty) Ltd Water Department, Hammersdale Waste-Water Treatment Works,
Hammersdale, Kwa-Zulu Natal, South Africa**

May 2020 – March 2021

Engineering Geologist

Subsurface profiling and DPL testing for the extensions to the existing Hammersdale WWTW. Analysis of the profiles and selection of laboratory tests for study objectives. Data analysis and report compilation for structure foundations.

Sultex Holdings (Pty) Ltd, Proposed Giba Industrial Development, Pinetown, Kwa-Zulu Natal, South Africa

May 2019 – July 2019

Engineering Geologist

Test pitting for soil profiling, disturbed and undisturbed sampling, delineation of groundwater seepage areas. Management and selection of laboratory tests. Analysing and interpretation of laboratory test results. Compilation of geotechnical report for foundations and groundwater management recommendations.

Smec, Cornubia Fills, Cornubia, Kwa-Zulu Natal, South Africa

March 2020 – January 2021

Project Manager and Client Liaison

In-situ testing for geotechnical soil profiles of the site and general site characterization for fills for the proposed housing development. Engineering geological report for the study for the fills. Reviewing the rotary drilling report for the client.

Mariswe (Pty) Ltd, Ward 7 Community Hall, Taylors Halt, Kwa-Zulu Natal, South Africa

January 2020 – March 2020

Project Manager and Client Liaison

Conducting the geotechnical investigation that included trial pitting, laboratory testing and percolation testing. Fieldwork and laboratory data processing for geotechnical report compilation.

**Dartingo Consulting Engineers (Pty) Ltd, Mandalathi Community Hall, Kwa-Zulu Natal, South Africa
2020**

Project Manager and Client Liaison

Conducting the geotechnical investigation that included trial pitting, laboratory testing and percolation testing. Fieldwork and laboratory data processing for geotechnical report compilation.

Ethekwini Municipality: Human Settlements and Infrastructure, Austerville Sites, Durban, Kwa-Zulu Natal, South Africa

February 2021 – June 2021

Project Manager and Client Liaison

In situ soil profiling and interpretation of the profiles. Consistency tests (DPL) and interpretation of the results evaluate the EASPB. Data compilation and report writing to determine the site's suitability for temporary housing development and recommending relevant foundation measures.

JG Afrika (Pty) Ltd Agricultural Engineering Division, Five ADA Rabbitry Sites, Kwa-Zulu Natal, South Africa

August 2019 – October 2019

Project Manager and Client Liaison

Khuthadzo Bulala

**Earth & Environment, Mine Waste, Geotechnical & Engineering Services –
Senior Consultant**

In situ soil profiling and interpretation of the profiles. Consistency tests (DPL) and interpretation of the results evaluate the EASPB and sample collection for laboratory analysis. Report compilation with foundation recommendations.

**Private Developers, Several Intaba Ridge Estate Houses Pietermaritzburg, Kwa-Zulu Natal, South Africa
2017 – 2020**

Project Manager and Client Liaison with Property Developers

In situ soil profiling, conducting in-situ consistency tests (DPL) and sampling for laboratory analysis. Report writing to determine the site's suitability for the house developments and recommending foundation depths and types as per NHBRC guidelines.

**Private Developer, Student Accommodation, Pietermaritzburg, Kwa-Zulu Natal, South Africa
April 2019 – July 2019**

Project Manager and Client Liaison

For the proposed three storey student accommodation development. In situ soil profiling, conducting in-situ consistency tests (DPL) and sampling for laboratory analysis. Report writing to determine the site's suitability for the housing development and recommending foundation depths and type as per NHBRC guidelines.

Green Door Environmental, 220 Murray Road Development, Pietermaritzburg, Kwa-Zulu Natal, South Africa

June 2019 – August 2019

Project Manager and Client Liaison

Report writing and field data analysis for the infill geotechnical investigation report for a multi-story development in Hayfields. The development includes a school, a shopping complex, a drive through, a petrol filling station and a residential area.

Marang Environmental and Associates (Pty) Ltd, Heidelberg Cemetery Extension, Heidelberg, Gauteng, South Africa

June 2020 – December 2020

Project Manager and Client Liaison

For the extension of the existing Heidelberg cemetery. Subsurface profiling and interpretation of the profiles. Field sampling for laboratory analysis. Geotechnical report writing and evaluating the site as per the South African Council for Geoscience Guidelines for Cemeteries.

Ziphelele Planning and Environmental Consultancy, Three Proposed Umhlathuze Cemeteries, Empangeni, Kwa-Zulu Natal, South Africa

May 2018 – February 2019

Project Manager and Client Liaison

For the development of three cemetery sites. Subsurface profiling, percolation testing and field sampling for laboratory analysis. Geotechnical report writing, evaluating and rating the sites as per the South African Council for Geoscience Guidelines for Cemetery Development.

Ziphele Planning and Environmental Consultancy, Alfred Duma Cemeteries, Ladysmith, Kwa-Zulu Natal, South Africa

June 2019 – October 2019

Project Manager and Client Liaison

For the development of cemetery sites in the municipality. Geotechnical desktop studies to evaluate and rate the proposed sites in Colenso, Ladysmith and Ezakheni. The desktop study reports were written as per the South African Council for Geoscience Guidelines for Cemeteries.

**Alfred Duma Municipality, Closure of Acaciavale Landfill Site, Ladysmith, Kwa-Zulu Natal, South Africa
2018 – 2020**

Engineering Geologist



Khuthadzo Bulala

**Earth & Environment, Mine Waste, Geotechnical & Engineering Services –
Senior Consultant**

Fieldwork including test pit profiling and interpretation from test pitting and sampling for study objectives. Data analysis and report compilation for the closure of the landfill site and recommendations on closure material.

**Alfred Duma Municipality, Danskraal Landfill Site, Ladysmith, Kwa-Zulu Natal, South Africa
2020**

Project Manager and Client Liaison

Including GIS work to identify and shortlist potential landfill sites. Fieldwork including test pit profiling and interpretation from test pitting for landfill site development investigation. Data analysis and report compilation.

**Department of Rural Development and Land Reform, UMgungundlovu Landfill Site, Pietermaritzburg,
Kwa-Zulu Natal, South Africa
March 2020**

Site Supervision

For the percussion drilling contract for the proposed new landfill site. Subcontractor management and client liaison. Percussion chip logging. Borehole water level and yield measurements. Hydrocensus and sampling existing boreholes in a 1km radius.

**Department of Rural Development and Land Reform, Agricultural Potential Assessment for the Ground
Truthing: New Irrigation Schemes Survey in Harry Gwala District, Umzimkhulu, Kwa-Zulu Natal, South
Africa**

July 2017 – August 2019

Project Manager and Client Liaison

Agricultural soil survey and sampling. Data analysis and report compilation for the agricultural potential and the irrigation potential of 7500ha land in the district municipality. Presentation of the final findings to the client.



UNIVERSITY
OF
JOHANNESBURG

The Council and the Senate of the
UNIVERSITY OF JOHANNESBURG
hereby certify that the degree

BACCALAUREUS SCIENTIAE

with field of study

Life and Environmental Sciences with Specialisation in
Geography and Geology

with all its associated rights and privileges
in accordance with the Statute of the
University has been conferred upon

KHUTHADZO BULALA

at a congregation of the University


Vice-Chancellor


Registrar

04 OCTOBER 2011
Johannesburg
ID 9003300684086



58144



UNIVERSITY OF LIMPOPO

WE,
THE UNDERSIGNED,
HEREBY CERTIFY THAT

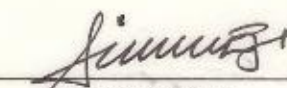
BULALA KHUTHADZO
(201213617)

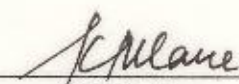
HAS BEEN AWARDED THE DEGREE

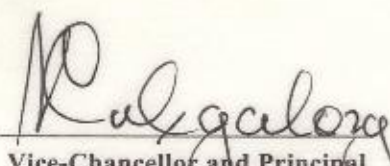
Bachelor of Science Honours

AT A CONGREGATION OF THE UNIVERSITY




Executive Dean


Registrar


Vice-Chancellor and Principal

24 MAY 2013

UNIVERSITY OF LIMPOPO; FORMERLY THE MEDICAL UNIVERSITY OF SOUTHERN AFRICA
AND THE UNIVERSITY OF THE NORTH

T 34342



Tumelo Mathulwe

Earth & Environment - Environmental Planning and Advisory, Principal Consultant

CAREER SUMMARY

Tumelo holds a BSc degree in Geography from the University of Pretoria. He is a Principal Consultant with seven years of experience as a consultant specialising in stakeholder engagements and social impact assessment. He also has experience in community and public participation, community surveys and resettlement action plan strategies. He has also conducted several environmental compliance audits and has been involved with Water Use Licence Applications (WULAs) and environmental authorisations.



4 years with WSP

Area of expertise

Stakeholder Engagement
Social Impact Assessment
Social & Environmental Permitting Reports

8 years of experience

Language

Setswana – Fluent
English – Fluent
Sotho – Fluent
Sepedi – Fluent

EDUCATION

BSc Geography, University of Pretoria, Pretoria

2016

PROFESSIONAL MEMBERSHIPS

Candidate Natural Scientist (Registration Number: 130284)

PROFESSIONAL HISTORY

WSP Group Africa (Pty) Ltd	2022 – present
Savannah Environmental - Woodmead	July 2021 – December 2021
Nemai Consulting – Randburg	February 2021 – July 2021
Golder Associates Africa (Pty) Ltd	2019 – 2020
Nemai Consulting – Randburg	2017 - 2018

PROFESSIONAL EXPERIENCE

Public Participation & Social Impact Assessment

TotalEnergies Exploration & Production South Africa, South Africa
2022 – 2023

Public Participation Practitioner and co-ordinator
Production right application.



Tumelo Mathulwe

Earth & Environment - Environmental Planning and Advisory, Principal Consultant

Eskom, South Africa

2024

Public Participation Co-ordinator

Application for minimum Emission Standard exemption for eight power stations.

Shell Downstream South Africa, South Africa

2022 - current

Public Participation Practitioner

97 Section 24G applications and EIAs.

Two Rivers Platinum Mine, South Africa

2022 - 2023

Public Participation Practitioner and co-ordinator

A Section 24G application.

Igolide Wind Energy Facilitation, South Africa

2023

Public Participation Practitioner and co-ordinator

An application for Environmental Authorisation.

ArcelorMittal South Africa, South Africa

2023

Public Participation Practitioner

An application for Atmospheric Emissions License amendment.

Mukonondeleli Solar Energy Facility, South Africa

2023

Public Participation Practitioner and co-ordinator

An application for Environmental Authorisation.

Delmanutha Wind and Solar Energy Facility, South Africa

2023

Public Participation Practitioner and co-ordinator

An application for Environmental Authorisation.

Tournee Solar Energy Facility, South Africa

2023

Public Participation Practitioner and co-ordinator

An application for Environmental Authorisation.

Sendawo Overhead Powerline and BESS, South Africa

2023

Public Participation Practitioner and co-ordinator

An application for Environmental Authorisation.

Komati Power Station, South Africa

2023

Social Impact Assessment, Public Participation Practitioner, and co-ordinator

An application for Environmental Authorisation.



Tumelo Mathulwe

Earth & Environment - Environmental Planning and Advisory, Principal Consultant

**Camden Solar Energy Facility, South Africa
2023**

Public Participation Practitioner and co-ordinator
An application for Environmental Authorisation.

**Middelburg Ferrochrome, South Africa
2023**

Public Participation Practitioner and co-ordinator
An application for Environmental Authorisation.

**Kelvin Power Station, South Africa
2023**

Public Participation Practitioner and co-ordinator
An application for Environmental Authorisation for decommissioning.

**Tronox Fairbreeze and Port Durnford Mine
2022-2023**

Public Participation Practitioner
An application for Environmental Authorisation.

**Secunda Wind Energy Facilities (Impumelelo and Mukondeleli), South Africa
2022**

Public Participation Practitioner and Co-ordination
An application for Environmental Authorisation.

**Hendrina Green Hydrogen, South Africa
2022**

Public Participation Co-ordination
An application for Environmental Authorisation.

**Matimba Power Station, South Africa
2022**

Public Participation Practitioner
An application for Environmental Authorisation.

**Modikwa Platinum Mine, South Africa
2022**

Public Participation Practitioner
An application for Environmental Authorisation.

**Gamsberg Zinc Mine, South Africa
2022**

Public Participation Practitioner
An application for Environmental Authorisation.

**Samancor Chrome Ltd, South Africa
2022**

Public Participation Practitioner
An application for a Mining Right.

Siyanda Bakgatlha Platinum Mine, South Africa



Tumelo Mathulwe

Earth & Environment - Environmental Planning and Advisory, Principal Consultant

2022

Public Participation Practitioner

An application for Environmental Authorisation.

Grindrod, South Africa

2022

Public Participation Practitioner

Section 24G application and Air Emissions License applications.

Genesis Eco-Energy Developments, Woodhouse Solar 1 PV & Woodhouse Solar 2 PV Facilities Grid Infrastructure, Vryburg, South Africa

2021

Public Participation Practitioner

A Basic Assessment for grid connection infrastructure associated with a solar photo voltaic facility

Eskom, Majuba PV Solar Energy Facility, Amersfoort, Amersfoort, South Africa

2021

Public Participation Practitioner

A Basic Assessment for a general waste disposal facility.

African Clean Energy Development, Great Karoo Wind Farm, Richmond, South Africa

2021

Public Participation Practitioner

A cluster of renewable energy facilities and associated infrastructure.

MP NRG (PTY) LTD, Nama East and West Solar, Kleinsee, South Africa

2021

Public Participation Practitioner

A Basic Assessment for solar energy facilities and associated grid infrastructure.

Mainstream Renewable Power South Africa, Korana, Pofadder, South Africa

2021

Public Participation Practitioner

A substantive amendment of a Wind Energy Facility.

Mainstream Renewable Power South Africa, Poortjies 2, Pofadder, South Africa

2021

Public Participation Practitioner

A substantive amendment of a Wind Energy Facility.

Wind Relic, Sun Garden and Solaris Fields PV facilities, Somerset, South Africa

2021

Public Participation Practitioner

A Basic Assessment for a Cluster of Renewable Energy Facilities between Somerset East and Makhanda.

ABO Wind, Pienaarspoort 2, Ceres, South Africa

2021

Public Participation Practitioner

A Basic Assessment for solar energy facilities and associated grid infrastructure.

Mainstream Renewable Power South Africa, Vrede PV Facility Grid Infrastructure, Public Participation, Kroonstad, South Africa

2021

Public Participation Practitioner



Tumelo Mathulwe

Earth & Environment - Environmental Planning and Advisory, Principal Consultant

A Basic Assessment for electrical grid infrastructure.

**Mainstream Renewable Power South Africa, Rondavel PV Facility Grid Infrastructure, Public Participation, Kroonstad, South Africa
2021**

Public Participation Practitioner

A Basic Assessment for electrical grid infrastructure.

**Northam Platinum, Zondereinde PV Facility, Northam, South Africa
2021**

Public Participation Practitioner

A Basic Assessment for a Solar Photo Voltaic facility.

**Mining Right Application Public Meeting, Zamdela, South Africa
2018**

Presenter

Presentation of a public meeting for the mining right application of an underground coal mine.

Environmental Assessments

**Kamoa Copper SA, Health Impact Assessment, Democratic Republic of Congo
2022**

Social Researcher

A health baseline assessment.

**Khuthala Colliery, South Africa
2022**

Environmental Assessment Practitioner

Application for amendment to an Environmental Authorisation

**Klipspruit Colliery, South Africa
2022**

Environmental Assessment Practitioner

Application for amendment to an Environmental Authorisation

**Shell Downstream South Africa, Section 24G Application for Various Service Stations, South Africa
2022 - current**

Compiling Section 24G applications and EIAs as well as the on-site information gathering

**Solaire Direct, Sannaspos Solar Park, near Bloemfontein, South Africa
2021**

Public Participation Practitioner

A Basic Assessment for a Solar Photo Voltaic facility.

**AngloGold Ashanti, Surface Water Pipeline and Associated Infrastructure, Carletonville, South Africa
2019**

Environmental Assessment Practitioner

Basic Assessment and General Authorisation for the dewatering of a defunct mine shaft through a surface pipeline to a dam.

Water Use License Application

**Anglo American, Water Use License Application, near Ogies, South Africa
2019**



Tumelo Mathulwe

Earth & Environment - Environmental Planning and Advisory, Principal Consultant

Water Use License Practitioner

Assisted in the Water Use License Application for the establishment of an underground mine **Sasol, Water Use License Application, Secunda, South Africa**

2019 - 2020

Role

Assisted in the Water Use License Application for the establishment of an open cast pit and underground mining.

Anglo American, Water Use License Amendment, Ogies, South Africa

2020

Water Use License Practitioner

Amendment of a water use license

Grindrod Terminals, Water Use License Audit, Richards Bay, South Africa

2019

Water Use License Practitioner

Auditing compliance of the site against the conditions provided in the Water Use License

Sasol, Water Use License Renewal, Secunda, South Africa

2020

Water Use License Practitioner

Renewal of a mining complex Water use License.

Glencore Operations South Africa, Lakenvlei Wetland Off-set, near Belfast, South Africa

2019 - 2020

Water Use License Practitioner

General Authorisation for the implementation of a wetland rehabilitation strategy.

Data Collection and Reporting

Gauteng Department of Roads and Transport, Rabie Ridge, South Africa

2021

Data Collection and Reporting

A baseline assessment of the baseline Socio-Economic conditions of 5 communities near Tembisa and Rabie Ridge in Johannesburg

Water Research Council, Stakeholder Perception Study, South Africa

2021

Interviewer

Collecting information on the sanitation facilities of Mining, Industrial, Commercial and Public workplaces in South Africa

Petra Diamonds, Crack Survey, Cullinan, South Africa

2020

Data Collector

Conducted a crack survey on 30+ houses



University of Pretoria

The Council and Senate hereby declare that
at a congregation of the University the degree

Bachelor of Science in Geography

with all the associated rights and privileges was conferred on

Tumelo Mathulwe

in terms of the Higher Education Act, 1997 and the
Statute of the University

On behalf of the Council and Senate

Vice-Chancellor and Principal

Registrar



00047607



CURRICULUM VITAE

Full Name	Antonia Belcher
Profession	Aquatic, Water Resources, Ecological and Environmental Sciences (Pr Sci. Nat. 005681)
Years in Profession	30+ years

Toni Belcher worked for the Department of Water Affairs and Forestry for more than 17 years. During this period she worked for the Directorate Water Quality Management, the Institute for Water Quality Studies and the Western Cape Regional Office and has built up a wide skills base on water resource management and water resource quality for rivers, estuaries and the coastal marine environment. Since leaving the Department in 2007, she has been working in her private capacity and was co-owner of BlueScience (Pty) Ltd, working in the field of water resource management and has been involved in more than 500 aquatic ecosystem assessments for environmental impact assessment and water use authorisation purposes. In 2006 she was awarded a Woman in Water award for Environmental Education and was a runner up for the Woman in Water prize for Water Research.

Professional Qualifications:

1984	Matriculation Lawson Brown High School
1987	B.Sc. – Mathematics, Applied Mathematics University of Port Elizabeth
1989	B.Sc. (Hons) – Oceanography University of Port Elizabeth
1998	M.Sc. – Environmental Management (<i>cum laude</i>) Potchefstroom University

Key Skills:

Areas of specialisation: Aquatic ecosystem assessments, Monitoring and evaluation of water resources, Water resource legislation and authorisations, River classification and Resource Quality Objectives, River Reserve determination and implementation, Water Quality Assessments, Biomonitoring, River and Wetland Rehabilitation Plans, Catchment management, River maintenance management, Water education.

Summary of Experience:

1987 – 1988	Part-time field researcher, Department of Oceanography, University of Port Elizabeth
1989 – 1990	Mathematics tutor and administrator, Master Maths, Randburg and Braamfontein Colleges, Johannesburg
1991 – 1995	Water Pollution Control Officer, Water Quality Management, Department of Water Affairs, Pretoria
1995 – 1999	Hydrologist and Assistant Director, Institute for Water Quality Studies, Department of Water Affairs and Forestry, Pretoria
1999 – 2007	Assistant and Deputy Director, Water Resource Protection, Western Cape Regional Office, Department of Water Affairs, Cape Town
2007 – 2012	Self-employed
2013 – 2020	Senior Aquatic Specialist and part owner, BlueScience
2020 – 2025	Self employed
Present	Senior Aquatic Specialist and part owner, BlueScience

Key Experience Record:

- More than 800 freshwater assessments studies as input into EIA decision making processes throughout Southern Africa. These EIAs have related to water and wastewater infrastructure development, road upgrades, power line and substation improvements, alternative energy and housing development projects amongst others
 - More than 100 water use license applications.
 - More than 30 Maintenance Management Plans, including River Maintenance Management Plans for the Kingna, Konings, Poesjenels and Baden and the Upper Berg and Olifants Rivers.
 - Development of RDM (Resource Directed Measures) curriculum for a Master degree programme at University of science institutions in South Africa.
 - Free State river health monitoring programme.
 - Classification of the water resources of the Olifants Doorn Water Management Area and determination of the Ecological Water Requirements of the Sandveld
 - Graphic design, layout, technical compilation and preparation of print ready glossy publications for the State-of-River reports for the Breede and Berg Rivers South Africa
 - Adopt-a-River: Eerste River Stellenbosch: training of staff members in river awareness of 50 unemployed people from the Stellenbosch Local Municipality
 - Development and piloting of a National Strategy to Improve Gender Representation in Water Management Institutions, where the focus is on improving the capacity (specifically amongst women) to participate in water related decision making.
 - Compilation of a background document as well as a framework management plan towards the development of an integrated water resources management plan for the Sandveld;
 - Aquatic specialist to the City of Cape Town project: Determination of additional resources to manage pollution in storm water and river systems;
 - Prepare and supply ecological flow requirements to the Department of Water Affairs project: Development of reconciliation strategies for selected towns in the Southern sub-region;
 - Framework for Education and Training in Water (FETWATER), Resource Directed Measures Network partner which has undertaken training initiatives on environmental water requirements in the SADC region; and
 - Resource Directed Management of Water Quality: Development of training materials, Department of Water Affairs and Forestry.
-

Holland & Associates



Environmental Consultants

Impact Assessments - Environmental Management Programs - Compliance Monitoring - Process Review

ANJA ISABEL ALBERTYN

*neé Terörde, in Germany, 1977
RSA permanent resident*

CURRICULUM VITAE

Anja Albertyn is an avifaunal specialist and Environmental Assessment Practitioner with a Master of Science in Zoology specialising in Ornithology from the Percy FitzPatrick Institute for African Ornithology at the University of Cape Town, a Bachelor of Science (Honours) in Zoology from Rhodes University, and a Bachelor of Science in Botany and Zoology from the University of South Africa, and a Vordiplom in Biology from the Heinrich-Heine Universität, Düsseldorf, Germany. She has worked as an environmental consultant since 2009 on a wide range of projects including wind and solar energy facilities, transmission lines, electrical infrastructure, housing developments, agricultural projects, water use license applications, effluent treatment technology testing, and aquaculture management.

Anja is a registered Professional Natural Scientist (Ecological Science: 400037/16) with the South African Council for Natural Scientific Professions (SACNASP), and an active member of the South African affiliate of the International Association for Impact Assessment (IAIAsa). She is also a selected member of the Birds and Renewable Energy Specialist Group (BARESG), demonstrating her expertise in the intersection of avifauna and renewable energy facilities.

Anja has been involved in avifaunal monitoring since 2004 and has been conducting avifaunal pre- and post-construction monitoring and assessments for renewable energy facilities and electrical grid infrastructure since 2012, having acted as lead specialist for avifaunal impact assessments, avifaunal feasibility studies and bird specialist reports on over 100 projects, mainly in the renewable energy and agricultural development space.

Anja is a registered Environmental Assessment Practitioner with EAPASA (2019/1694). She has compiled basic, scoping & environmental impact assessment reports, environmental management plans, environmental audits and environmental authorisation amendment applications in the role of lead environmental consultant on over 30 projects since 2015.

Anja has a particular interest in birds and the ecology of estuarine birds in particular, having published eight scientific papers on this topic to date.

PROFESSIONAL EXPERIENCE

Current **Director & Co-owner (Avifaunal Specialist & EAP)**
Holland & Associates Environmental Consultants, Tokai / Port Alfred

- 2023 - **Co-owner (Avifaunal Specialist & EAP)**
2025 *Holland & Associates Environmental Consultants, Tokai / Port Alfred*
- 2019 – **Avifaunal Specialist and Environmental Consultant**
2023 *Holland & Associates Environmental Consultants, Tokai / Port Alfred*
- 2017- **Avifauna Specialist & Environmental Consultant**
2019 *Arcus Consultancy Services South Africa, Cape Town*
- 2013 - **Ecology Consultant (Avifauna)**
2017 *Arcus Consultancy Services South Africa, Cape Town*
- 2011 - **Avifaunal Monitoring Services**
2013 *Self-employed, Cape Town*
- 2011 - **Project Manager and UX Designer (part-time)**
2013 *the binary family, Cape Town / Berlin*
- 2009 - **Researcher**
2011 *Anchor Environmental Consultants, Tokai*
- 2005 - **Director & Co-founder**
2008 *Fishriver Horse Safaris, Port Alfred*
- 2002 - **Assistant Camp Manager**
2003 *Mashatu Game Reserve, Tuli Block, Botswana*
- 1999 - **Wildlife Research Assistant**
2002 *Centre for Wildlife Management, Pretoria / Mashatu Game Reserve, Botswana*

ACADEMIC QUALIFICATIONS

- *Department of Environmental Science, Rhodes University, 2015: Introduction to Environmental Impact Assessment Procedure **Short Course** (Highly competent)*
- *Percy FitzPatrick Institute, University of Cape Town, 2006-2009: Zoology (Ornithology), **Master of Science***
- *Rhodes University, 2005-2006: **Bachelor of Science Zoology (Honours)***
- *University of South Africa, 2002 – 2004: **Bachelor of Science Zoology & Botany** (cum laude)*
- *Heinrich-Heine Universität, Düsseldorf, Germany, 1999 – 2002, Biology, Vordiplom*

PROJECT EXPERIENCE

Avifaunal Pre-application Monitoring & Specialist Impact Assessments for Wind Energy Facilities (WEFs) and associated electrical grid infrastructure (EGI)

- | | |
|--|--|
| <ul style="list-style-type: none"> • Proposed WEF near Aberdeen, NC • Proposed WEF near Pofadder, NC • Proposed WEF 1 near Vrede, Free State • Proposed WEF 2 near Vrede, Free State • Proposed WEF near Dundee, KZN • Proposed WEF Balfour, Mpumalanga • Proposed WEF Utrecht, KwaZulu-Natal | <ul style="list-style-type: none"> • Authorised Carissa WEF, Western Cape • Proposed Ugie WEF, Eastern Cape • Authorised Soutrivier North WEF, NC • Authorised Soutrivier Central WEF, NC • Authorised Soutrivier South WEF, NC • Authorised Soutrivier North EGI • Authorised Soutrivier Central EGI |
|--|--|

- | | |
|--|--|
| <ul style="list-style-type: none"> • Proposed Soutrivier South EGI • Proposed Brandberg WEF, WC • Proposed Kabbo WEF, NC • Authorised Kap Vley WEF, Kleinsee, NC • Authorised Paulputs WEF, Pofadder, NC • Authorised Highlands North WEF, EC • Authorised Highlands Central WEF, EC • Authorised Highlands South WEF, EC • Proposed Kleinberg WEF, WC • Proposed WEF Pofadder, Northern Cape • Proposed Aggeneys WEF • Proposed WEF Loxton, Northern Cape • Proposed Riebeeck East WEF | <ul style="list-style-type: none"> • Proposed WEF Gqeberha, Eastern Cape • Proposed Kolkies WEF Touw's River • Proposed Karee WEF Touw's River • Authorised Komsberg East WEF, WC • Authorised Komsberg West WEF, WC • Grassridge II WEF, Addo, Eastern Cape • Proposed WEF Elliot, Eastern Cape • Proposed WEF Indwe, Eastern Cape • Proposed Koingnaas WEF • Proposed Richtersveld WEF • Namakwaland WEF, Northern Cape • Authorised Springbok WEF |
|--|--|

Avifaunal Post-construction Monitoring for Wind Energy Facilities:

- | | |
|--|--|
| <ul style="list-style-type: none"> • Msenge WEF, Eastern Cape • West Coast 1 WEF, Western Cape | <ul style="list-style-type: none"> • Gouda WEF, Western Cape • Hopefield WEF, Western Cape |
|--|--|

Avifaunal Pre-application Monitoring & Specialist Impact Assessments for Solar Energy Facilities and associated Electrical Grid Infrastructure

- | | |
|---|---|
| <ul style="list-style-type: none"> • Proposed Megora Solar PV 1a, WC • Proposed Megora Solar PV 1b, WC • Proposed Megora Solar PV 1c, WC • Proposed Megora Solar PV 2, WC • Proposed Megora EGI 1, WC • Proposed Megora EGI 2, WC • Proposed Groene Rivier Solar PV, WC • Proposed Sol Platz Solar PV, Free State • Authorised Padloper Solar PV 1, NC • Authorised Padloper Solar PV 2, WC • Authorised Padloper Solar PV 3, WC • Authorised Padloper Solar PV 4, WC • Authorised Padloper Solar PV 5, WC • Authorised Padloper Solar PV 6, WC • Authorised Padloper Solar PV 7, WC • Authorised Padloper EGI 1, WC • Authorised Padloper EGI 2, WC • Authorised Padloper EGI 3, WC • Authorised Padloper EGI 4, WC • Authorised Paarde Valley PV2 Solar PV Facility • Authorised Steenbok 1 Solar PV Facility, Free State • Authorised Steenbok 2 Solar PV Facility, Free State | <ul style="list-style-type: none"> • Authorised Steenbok 1 EGI, Free State • Authorised Steenbok 2 EGI, Free State • Authorised Notsi Solar PV 1, Free State • Authorised Notsi Solar PV 2, Free State • Authorised Notsi Solar PV 3, Free State • Authorised Notsi Solar PV 4, Free State • Authorised Notsi Solar PV 5, Free State • Authorised Notsi EGI 1, Free State • Authorised Notsi EGI 2, Free State • Authorised Notsi EGI 3, Free State • Authorised Notsi EGI 4, Free State • Authorised Notsi EGI 5, Free State • Proposed Soutrivier Solar PV, NC • SPV Renfields Solar PV, Hopefield • Hive Energy Solar PV, Gqeberha, EC • Authorised Parsons PV Power Park, Gqeberha, EC • Hive Energy Solar Project, Gqeberha, EC • Bokpoort Solar Farm, Groblershoop, NC • Metsimatala CSP Facility, NC • Avifaunal Impact Assessment 132 kV Mbumbu-Tsakani Powerline |
|---|---|

Avian Species Specialist Impact Assessments, Compliance Statements & Specialist Studies

- Notsi PV 1 - 5 Avifaunal Walkthrough, FS
- Fluorochemical Plant, Coega, EC
- Peer Review & Rectification to IFC Standards of Khauta PV Avifaunal Study
- Khauta PV Avifaunal Walkthrough
- Paarde Valley PV2 Avifaunal Walkthrough. NC
- ERF 461 Malgas, WC
- ANB Properties Agricultural S24G, WC
- Ernst Bruwer Agricultural Expansion, WC
- Glen Oak Agricultural Expansion, WC
- De Denne Agricultural Expansion, WC
- Expansion of the town of Aggeneys, NC
- Residential development on Erf 21281 Mossel Bay
- Veldrif Saltworks Closure Plan, WC
- Billy Klopers Agricultural Developments
- Lingenfelder Agricultural Developments
- LIV Village Development, Makhandia, EC
- Umsinde WEF EMPr
- Khangela WEF EMPr
- Indigo Fruit Farm Agricultural Expansions, Ashton, WC
- Mossel Bay Zipline EMPr Avian Study
- Arlington Mixed-Use Development, Gqeberha, EC
- Kweek Kraal Agricultural Expansion, Citrusdal, WC
- Doornkloof Dam and Agricultural Expansion, Swellendam, WC
- De Wilgen Agricultural Expansion, Ashton, WC
- Welgegund Agricultural Expansion, Robertson, WC
- Jan Rabie Dam Enlargement Robertson
- Auriga Thermal Power Plant Saldanha Bay, WC
- Vortum Gas Cycle Turbine in Saldanha Bay, WC
- Avifaunal Walkthrough, Robben Island PV, WC

Avian Feasibility Studies and Specialist Nest Surveys

- Aberdeen North WEF Avifaunal Feasibility Study
- Aberdeen South WEF Avifaunal Feasibility Study
- Acacia WEF Avifaunal Feasibility Study
- Raptor Nest Survey, Sutherland area
- Avifaunal Feasibility Assessment, 2 Confidential WEFs, Western Cape
- Avifaunal Feasibility Assessment, 6 Confidential WEFs, Eastern Cape
- Avifaunal Feasibility Assessment, 6 Confidential WEFs, Northern Cape
- Canal Walk Wetlands Avifauna Study, Cape Town
- Review and mitigation strategy design for birds at the Kinangop Wind Park, Kenya

Lead Environmental Consultant

- De Zwartland Werf Stormwater Detention Pond Basic Assessment Process, Malmesbury
- Paarde Valley PV2 Grid Connection Basic Assessment Process, De Aar, NC
- Paarde Valley PV2 Amendment Application Process, De Aar, NC
- Bernheim Agricultural Expansion, Robertson, Basic Assessment Process
- Kransvlei Agricultural Expansions, Scoping & EIA Process, WC
- Melkboomfontein Agricultural Expansions, Citrusdal S24G Process
- Wasplaas Dam, Paarl, S24G Application
- Brandwagt Agricultural Expansion, Robertson, Basic Assessment Process
- Bruwers Agricultural Expansions, Basic Assessment Process
- Ouplaas Dam Enlargement, Greyton, S24G Process
- Boekenhoutskloof Agricultural Expansion, Hermanus, Basic Assessment Process

- Malmesbury Mall & Hospital, WC, Basic Assessment Process
- Malmesbury Mall & Hospital, WC, Part 1 Amendment
- Namaquasfontein Skool Dam, WC, Section 24G Application
- De Molen Dam, WC, Section 24G Application, De Molen Dam, WC
- Oude Schuur Agricultural Developments, Worcester, Scoping & EIA Process
- Highlands WEFs, Eastern Cape, Scoping & EIA Process
- Phezukomoya WEF, Noupoot, Scoping & EIA Process
- San Kraal WEF, Noupoot, Scoping & EIA Process

SCIENTIFIC PUBLICATIONS & CONFERENCES

- Albertyn-Terörde A, Allan DG, Ralston-Paton S, Simmons R, Smallie J, Smit-Robinson H & van Zyl A. **2023**. Reflections from South Africa. Lessons from over a decade of addressing wind energy's impacts on birds in Southern Africa. *7th Conference on Wind Energy and Wildlife Impacts – CWW 2023, Sibenik, Croatia*.
- Cowley, PD, Terörde, AI & Whitfield, AK. **2018**. Birds as major predators of fishes in a small estuary: does this influence the nursery area concept for estuary-associated fish species? *African Zoology* 52: 147-154
- Maree, BA, Cowley, PD, Naesje, TF Childs, A-R, Terörde, AI & Thorstad, EB. **2016**. Influence of prey abundance and abiotic factors on the long-term home-range and movement dynamics of spotted grunter *Pomadasys commersonnii* in an intermittently open estuary. *African Journal of Marine Science* 2016: 1-10
- Terörde, AI & Turpie, JK. **2013**. Influence of habitat structure and mouth dynamics on avifauna of intermittently-open estuaries: A study of four small South African estuaries. *Estuarine, Coastal and Shelf Science* 125: 10-19
- Terörde, AI & Turpie, JK. **2012**. Use of a small, intermittently-open estuary by waterbirds: a case study of the East Kleinemonde Estuary, Eastern Cape, South Africa. *African Journal of Aquatic Science* 37: 183-190
- Terörde, AI, Clark, B. Hutchings, K. Orr, K. **2011**. Ballast water management technology testing. *South African Marine Science Symposium 2011*.
- Turpie, JK. Clark, B.M., Bornman, T, Cowley, PD & Terörde, AI. **2009**. Integrated Ecological-Economic Modeling as an Estuarine Management Tool: A Case Study of the East Kleinemonde Estuary. *Volume II: Model Construction, Evaluation and User Manual. WRC Report No. 1679/2/08*
- Terörde, AI & Turpie, JK. **2008**. Appendix K. Specialist Report: Birds. In: van Niekerk, L., Bate, G.C. & Whitfield, A.K. (eds). *East Kleinemonde Estuary Reserve determination study: Technical report*. Department of Water Affairs & Forestry, Pretoria.
- Whitfield, AK, Adams, JB, Bate, GC, Bezuidenhout, K, Bornman, TG, Cowley, PD, Froneman, PW, Gama, PT, James, NC, Mackenzie, B, Riddin, T, Snow, GC, Strydom, NA, Taljaard, S, Terörde, AI, Theron, AK, Turpie, JK, van Niekerk, L, Vorwerk, PD & Wooldridge, T.H. **2008**. A multidisciplinary study of a small, intermittently open South African estuary, with particular emphasis on the influence of mouth state on the ecology of the system. *African Journal of Marine Science* 30: 453-474
- Terörde, AI & Turpie, JK. **2008**. Use of a small, intermittently-open estuary by waterbirds: a case study of the East Kleinemonde estuary, Eastern Cape, South Africa. *South African Marine Science Symposium 2008*. (Awarded best student oral presentation)
- Terörde, AI & Turpie, JK. **2007**. Birds. In: Whitfield AK, Bate GC (eds). *A Review of Information on Temporarily Open/closed Estuaries in the Warm and Cool Temperate Biogeographic Regions of South*

Africa, with Particular Emphasis on the Influence of River Flow on these Systems. *WRC Report No. 1581/1/07.*



herewith certifies that

Anja Isabel Albertyn

Registration Number: 400037/16

is a registered 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 1 of the Act)

Ecological Science (Professional Natural Scientist)

Effective **27 January 2016**

Expires **31 March 2026**



A handwritten signature in black ink, appearing to read 'S. Neph'.

Chairperson

A handwritten signature in black ink, appearing to read 'N. Maseko'.

Chief Executive Officer



ABRIDGED CV & REFERENCE LIST

RIAAN A. J. ROBBESON (Pr.Sci.Nat.)

2025

Personal Particulars

Surname: ROBBESON
Full Names: RIAAN ANDRIES JAKOBUS
Date of Birth: 13th April 1969
Nationality: South African
Postal Address: PO Box 77448, Eldoglen, 0171
Cellular Contact: +27 (0)82 3765 933
Telephone Contact: +27 (0)12 658 5579
Email: riaan@bathusi.org
Proficient Languages: English and Afrikaans

Consulting Experience

Name of Firm: Bathusi Environmental Consulting cc
Position: Company Director
Experience: 28 years
Years with BEC: 26 years
Profession: Environmental Scientist, Ecologist, Botanist, Zoologist

Education

DEGREE / DIPLOMA	FIELD	INSTITUTION
B.Sc.	Botany and Zoology (major subjects), Geography, Chemistry, Genetics	University of Pretoria (1987 – 1991)
B.Sc. (Hons)	Botany	University of Pretoria (1992)
M.Sc.	Plant Ecology	University of Pretoria (1994 – 1998)
Visual Basic Programming	Programming	Unischool (University of Pretoria), 1999

Professional Registration and Affiliations

Society	Category	Field of Expertise	Registration
South African Council of Natural Scientific Professions (SACNASP)	Professional Natural Scientist (Pr.Sci.Nat.)	Ecological & Botanical Scientist	2003
	Certificated Natural Scientist (Cert.Sci.Nat.)	Zoological Scientist	2021

Grassland Society of southern Africa

South African Association of Botanists

South African Wildlife Management Association

Zoological Society of Southern Africa

Birdlife South Africa

Key Attributes

Riaan has been always been a passionate ecologist. Since a very young age his interest in ecology and his natural love and understanding of the natural environment has guided him towards a lifelong commitment to a profession in the natural sciences. After obtaining his B.Sc. degree in 1990, with Zoology and Botany as major subjects, he committed to post-graduate studies, ultimately obtaining his B.Sc. (Hons) Degree in 1992. While working as a research assistant and team member of the National Grassland Biome Project between 1994 and 1998 at the University of Pretoria, he also obtained his M.Sc. Degree in Plant Ecology, which facilitated a transition into specialist environmental studies. Since then he has been passionately involved in numerous ecological studies with the main emphasis on botanical and ecological assessments.

In 1999 Riaan established Bathusi Environmental Consulting cc with the objective of holistic ecological studies with emphasis of the inclusion of all biological disciplines. Strong collaboration with specialists in other fields therefore was, and still remains, a priority at BEC. This inter-disciplinary collaboration enabled Riaan to acquire additional working knowledge of other fields of specialisation, including invertebrates, mammals, herpetofauna and birds. During his environmental consulting career Riaan has acquired extensive experience in the evaluation of the status and reaction of the natural environment to development, across the ecological spectrum of plants, animals and biophysical attributes of the receiving environment.

In addition to his academic knowledge and extensive experience in the Grassland and Savanna Biomes, his consulting experience also allowed valuable opportunities to expand his knowledge and understanding of other biomes across southern Africa. Besides multitudes of ecological assessments and scientific investigations he has also successfully developed and implemented several biodiversity monitoring programmes and other long-term projects. Riaan displays an enthusiastic, always willing and 'can do' approach to projects and effectively operates as part of a team environment or in isolation.

Apart from being committed to his professional career, other personal interests include wildlife and sports photography, and birding. Riaan also has a life-long passion for sport; he is the holder of five Comrades bronze medals between 2005 and 2010 and is also a frequent competitor in ultra-endurance mountain bike events such as 36ONE Mountain Bike Challenge, TransBaviaans Mountain Bike Marathon, Ride the Karroo, and also socially plays golf and squash.

Employment Record

POSITION	COMPANY	JOB DESCRIPTION	DURATION
Research Assistant	University of Pretoria	Botanical surveys, plant identifications, data capturing, data analysis, report compilation, phytosociological descriptions, Post graduate Masters Publications	1994 - 1998
Member	EkolInfo cc	Project acquisition, site investigations, data analysis, report compilation, GIS mapping, selected peer review for publications and specialist reports, administrative responsibilities	1995 - 1999
Member	Bathusi Environmental Consulting cc	Project acquisition and management, site investigations, data collection and analysis, report compilation, GIS mapping, selected peer review of publications and specialist reports, financial administrative responsibilities	1999 - present

Capabilities & Services

The core of Riaan's expertise, knowledge and activities are aimed at terrestrial biodiversity disciplines with a specific focus on botany. However, extensive collaboration with a wide range of specialists in faunal disciplines during his career also allowed an understanding of these fields that allows assimilation, integration and interpretation of biological data from diverse biological and ecological fields.

During his career he has successfully provided the following services

- ⇒ Biodiversity Site Sensitivity Verification (SSV) studies and Biodiversity Compliance Statements;
- ⇒ Biodiversity Scoping and EIA studies (S&EIR);
- ⇒ Fatal Flaw Analysis;
- ⇒ Biodiversity Offset studies;
- ⇒ Environmental Management Programme reports (EMPr);
- ⇒ Biodiversity Action Plans (BAP);
- ⇒ Biodiversity and biological monitoring projects and reports;
- ⇒ Threatened species surveys;
- ⇒ Protected species walkdowns and permitting support to national and provincial authorities;
- ⇒ Alien and Invasive Species surveys and management plans; and
- ⇒ Scientific studies.

Project Contributions

2025

- ⇒ Biodiversity (Terrestrial Biodiversity and Plant Species themes) EIA reports for the Ga-Masemola 1, 2, 3, & 4 PV Projects that will be situated in the Limpopo Province. For Savannah Environmental.
- ⇒ Biodiversity (Terrestrial Biodiversity, Plant, and Animal Species themes) assessments for the Biesiesvlei BESS Project, that will be situated in the Free State Province. For Atana, in collaboration with Pachnoda Consulting cc.
- ⇒ Biodiversity (Terrestrial Biodiversity, Plant, and Animal Species themes) assessments for the Biesiesvlei MTS & LILO Project, that will be situated in the Free State Province. For Atana, in collaboration with Pachnoda Consulting cc.
- ⇒ Biodiversity (Terrestrial Biodiversity, Plant, and Animal Species) assessments for Biesiesvlei Phoenix & Skulpspruit SEF Projects, Free State Province. For Atana, in collaboration with Pachnoda Consulting cc.
- ⇒ Biodiversity (Terrestrial Biodiversity, Plant, and Animal Species) assessments for the Biesiesvlei Kassina, Mooihoek, Matla-a-Moea & Terra Firma WEF Projects, Free State Province. For Atana, in collaboration with Pachnoda Consulting cc.
- ⇒ Biodiversity (Terrestrial Biodiversity, Plant, and Animal Species) Site Sensitivity Verification for the Nigel Greenfields Solar Project, Gauteng Province. For Cennergi, in collaboration with Pachnoda Consulting cc.
- ⇒ Strategic butterfly habitat sensitivity assessment for the proposed Verkykerskop WEF project, Free State Province. For WSP, in collaboration with Anthene Ecological.
- ⇒ Strategic butterfly habitat sensitivity assessment for the proposed Uvemvane WEF project, Mpumalanga Province. For WSP, in collaboration with Anthene Ecological.
- ⇒ Terrestrial Biodiversity Site Sensitivity Verification assessment and Compliance Statement for the proposed Mbombela UNISA Development, Mpumalanga Province. For Chochoza Environmental.
- ⇒ Terrestrial Biodiversity Surveys and Management Plans for the Matimba Power Station and Matimba Ash Disposal Facility areas, Limpopo Province. For Eskom Holdings SOC.
- ⇒ Biodiversity Assessments for the Alrode Overnight Logistics Section 24G Application, Gauteng Province. For Mills & Otten Environmental Consultants.
- ⇒ Terrestrial Biodiversity and Plant Species themes Site Sensitivity Verification assessments for the Solar 1 Solar PV Cluster Project, Limpopo Province. For Savannah Environmental.

2024

- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Maphumulo Ward 1 Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Avifaunal Walkdown and Construction and Operational Environmental Management Programme Report for the Eskom Ocheni Substation and Ocheni-Glendale 132 kV Line for Eskom SOC, KwaZulu Natal Province.

- ⇒ Reptile Search and Rescue at the Tubatse Ferrochrome Photovoltaic Project Areas, near Steelpoort in the Limpopo Province. For RoyalHaskoningDHV, on behalf of Samancor Chrome Limited.
- ⇒ Botanical Walkdown and permitting support (LEDET, DFFE) for the Tubatse Ferrochrome Photovoltaic Project Areas, near Steelpoort in the Limpopo Province. For RoyalHaskoningDHV, on behalf of Samancor Chrome Limited.
- ⇒ Terrestrial Biodiversity Screening Assessments and development of Alien and Invasive Management Plans for selected Engen facilities across South Africa. For Mills & Otten Environmental Consultants, on behalf of Engen South Africa (Limpopo, Mpumalanga, Gauteng, Free State, North-West, KwaZulu-Natal, Eastern Cape, Western Cape Provinces).
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Clive Transport 22 kV Lines for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Mthonjeni Ward 8 Ndundulu 22 kV Line Infills Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Terrestrial Biodiversity Screening Assessment for the Moreleta Plaza Section 24G application, Gauteng Province. For Mills & Otten Environmental Consultants.
- ⇒ Alien and Invasive plant species Management Plans for the Corobrik Driefontein, Eastbrik & Middelwit, and Lawley sites, Gauteng Provinces. For Corobrik.
- ⇒ Terrestrial Biodiversity Verification Report for the proposed Greylingstad Photovoltaic Development, Mpumalanga Province. In association with Pachnoda Consulting cc. For Zutari.
- ⇒ Terrestrial Biodiversity Verification Report for the proposed Ventersdorp Photovoltaic Development, North-West Province. In association with Pachnoda Consulting cc. For Zutari.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Umhlathuze Ward 33 Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN, MTPA) for the Eskom Normandie Pongola 132 kV Line Maintenance Project for Eskom SOC, KwaZulu Natal, Mpumalanga Provinces.
- ⇒ Terrestrial Biodiversity Impact Assessment for the proposed Samancor Photovoltaic Project (additional areas) that will be situated near Steelpoort in the Mpumalanga Province. For RoyalHaskoningDHV, on behalf of Samancor Chrome Limited.
- ⇒ Esther Park Red Data Assessment and Monitoring Protocol for the *Trachyandra erythrorrhiza* community that is situated near Esther Park in the Gauteng Province (2023). For Bombela Operating Company.
- ⇒ Landscape Ecological, Faunal and Avifaunal Assessment for the proposed Saldanha 33 kV Line that will be situated near Saldanha in the Western Cape Province. For Ecoleges, in association with Pachnoda Consulting cc.
- ⇒ Terrestrial Biodiversity Fatal Flaw Assessment for the proposed Biesiesvlei Wind Energy Facility that will be situated in the Free State Province. For Royal HaskoningDHV.

2023

- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Department of Environmental Affairs Reticulation Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom South Africa Reticulation Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Amahovi Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Terrestrial Biodiversity Compliance Statement for the Mookgopong Police Station Expansion for Mills & Otten Environmental Consultants. Limpopo Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Ndwedwe Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Emasakeni Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Update of the Storm Mountain Diamonds Terrestrial Biodiversity Report for Storm Mountain Diamonds. Kingdom of Lesotho.
- ⇒ Operational vegetation management recommendations for the N14 Maintenance Operations, for PT Operational Services, Gauteng and North-West Provinces.
- ⇒ Botanical Walkdown of the Kuruman Gamahaan – Seven Miles 132 kV Line for Eskom SOC. Northern Cape Province.
- ⇒ Terrestrial Biodiversity Compliance Statement and Sensitivity Report for the Bronville Substation for Royal HaskoningDHV. Free State Province
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Buhlebuzile Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, LEDET) for the Diamcor Diamond Mine, Limpopo Province.
- ⇒ Terrestrial Biodiversity Assessment for the Section 24G Application for a development on Kalkheuvel West, Gauteng Province.

- ⇒ Red Data and Protected Plant Species Surveys & Permitting Services for the Buffelspoort Solar Photovoltaic Energy Facility, North West Province, for Chariot Transitional Power.
- ⇒ Terrestrial Biodiversity Impact Assessment Report for the Welgedacht Mining Project (Umgala & Knights Hill Sections), KwaZulu-Natal Province. For GCS. In association with Pachnoda Consulting cc.
- ⇒ Terrestrial Biodiversity Assessment for the proposed service station development, that will be situated on a portion of Kalkfontein Farm 1001-LS near Polokwane, Limpopo Province. For Mills & Otten Environmental Consultants.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Vergenoeg Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Terrestrial Biodiversity Assessment for the proposed Princess Service Station Development, that will be situated on Erf 68 of Princess AH in Roodepoort, Gauteng Province. For Mills & Otten Environmental Consultants.
- ⇒ Terrestrial Biodiversity Assessments for the Proposed Upgrade of the existing Pomona Sewage Pumpstation that is situated on Erf 79 of Farm Rietfontein 31-IR in Kempton Park, Gauteng Province. For Royal HaskoningDHV.
- ⇒ Esther Park Red Data Assessment and Monitoring Protocol for the *Trachyandra erythrorrhiza* community that is situated near Esther Park in the Gauteng Province (2022). For Bombela Operating Company.
- ⇒ Plant species, animal species & biodiversity assessments for the refurbishment of Pacaltsdorp Sewer Pumpstations 3 & 6 and associated pipelines, near George in the Western Cape Province. For Greenfire Enviro.

2022

- ⇒ Terrestrial Biodiversity Assessments for the Proposed Gridflex BESS and associated transmission lines near Centurion in the Gauteng Province. For Dzimuzwo. In association with Pachnoda Consulting.
- ⇒ Botanical walkdown for Protected Species and Permitting Requirements (DFFE, MPTA) for the Eskom Reabetswe 132 kV LILO Chickadee Power Line in the Steve Tshwete Local Municipality, Mpumalanga Province. For Eskom SOC.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom HP Zulu Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Harry Gwala Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Terrestrial Biodiversity Offset Recommendations for the Letšeng Diamond Mine in The Kingdom of Lesotho. For Wetlands Consulting Services, on behalf of Letšeng Diamond Mine.
- ⇒ Comments and recommendations on the statistical analysis of rehabilitation trails and experiments for Letšeng Diamond Mine in The Kingdom of Lesotho. For Letšeng Diamond Mine.
- ⇒ Terrestrial Biodiversity report for the Green Certification Application for the Sky Park Development that will be situated near Oliver Tambo International Airport, Gauteng Province. For Mills & Otte Environmental Consultants.
- ⇒ Terrestrial Biodiversity and Ecological Assessment of the proposed Mototolo Mine Parking Lot that will be situated near Mototolo Mine, Limpopo Province. For Shangoni Management Services.
- ⇒ Botanical assessment of Portion 30 of Farm Doornrug 302 that is situated near Balmoral in the Mpumalanga Province. For Mills & Otte Environmental Consultants.
- ⇒ Terrestrial Biodiversity Monitoring Protocol and Report for the Letšeng Diamond Mine in The Kingdom of Lesotho. For Letšeng Diamond Mine. In association with Pachnoda Consulting, Enviro-Insight, Ecocheck.
- ⇒ Esther Park Red Data Assessment and Monitoring Protocol for the *Trachyandra erythrorrhiza* community that is situated near Esther Park in the Gauteng Province (2021). For Bombela Operating Company.

2021

- ⇒ Botanical Screening Verification Assessment of the Premier Place Development, Gauteng Province. For Mills & Otten Environmental Consultants.
- ⇒ Terrestrial Biodiversity Screening Verification Assessment of the AECl Modderfontein Photovoltaic Development, Gauteng Province. For Royal HaskoningDHV.
- ⇒ Terrestrial Biodiversity Screening Verification Assessment of the Waltloo Photovoltaic Development, Gauteng Province. For Royal HaskoningDHV.
- ⇒ Terrestrial Biodiversity Screening Verification Assessment of the Senmin Sasolburg Photovoltaic Development, Gauteng Province. For Royal HaskoningDHV.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Tshongwe Electrification Project for Eskom SOC, KwaZulu Natal Province.
- ⇒ Terrestrial Biodiversity Offset Recommendations for the Samancor PV Project, near Steelpoort in the Limpopo Province. For Royal HaskoningDHV.
- ⇒ Terrestrial Biodiversity Impact Assessment of the proposed Samancor Photovoltaic Project, that will be situated near Steelpoort in the Limpopo Province. For Royal HaskoningDHV, on behalf of Samancor Chrome. In association with Pachnoda Consulting.
- ⇒ Botanical Screening Verification Assessment of the Dan City Development, Gauteng Province. For Mills & Otten Environmental Consultants.

- ⇒ Terrestrial Biodiversity Monitoring Protocol and Report for the Letšeng Diamond Mine in The Kingdom of Lesotho. For Letšeng Diamond Mine. In association with Pachnoda Consulting, Enviro-Insight, Ecocheck.
- ⇒ Terrestrial Biodiversity Assessment of the proposed stormwater developments for the Venetia Mine, situated in Limpopo Province. For Shangoni Management Services. In association with Pachnoda Consulting.
- ⇒ Specialist ecological opinion and review of proposed mining layout amendments to the Vygenhoek Mining Development, near Steelpoort in the Limpopo Province. For Environmental Management Assistance.
- ⇒ Terrestrial Biodiversity Assessment of the Moletje Development, situated in Limpopo Province. For Mills & Otten Environmental Consultants.
- ⇒ Terrestrial Biodiversity Assessment of the proposed Gridflex BESS and associated power lines that will be situated near Centurion in the Gauteng Province. For Dzimuzwo. In association with Pachnoda Consulting.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Elandskop Substation, for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Doornkop Electrification project, for Eskom SOC, KwaZulu Natal Province.
- ⇒ Botanical Walkdown and Permitting support (DFFE, EKZN) for the Eskom Zululand Electrification project, for Eskom SOC, KwaZulu Natal Province.
- ⇒ Terrestrial Biodiversity Scoping Assessment of the proposed Bokpoort ICE Development in the Northern Cape Province. For ACWA Power.
- ⇒ Botanical Assessment of the proposed Dalpark II Development in the Gauteng Province. For Mills & Otten Environmental Consultants.
- ⇒ Terrestrial Biodiversity Assessment of the proposed Umgala Mining Project that will be situated near Utrecht in the KwaZulu-Natal Province. For GCS. In association with Pachnoda Consulting.

2020

- ⇒ Botanical and Avifaunal Monitoring Protocol for the NEO 1 Photovoltaic Project that is situated in The Kingdom of Lesotho. For Royal HaskoningDHV. In association with Pachnoda Consulting.
- ⇒ Ecological Report for the proposed housing developments at the Bokpoort Photovoltaic Development, situated in the Northern Cape Province. For ACWA Power.
- ⇒ Comments and recommendations on the statistical analysis of rehabilitation trails and experiments for Letšeng Diamond Mine in The Kingdom of Lesotho. For Letšeng Diamond Mine.
- ⇒ Terrestrial Biodiversity Impact Assessment of the proposed Vygenhoek Mining Development, near Steelpoort in the Limpopo Province. For Environmental Management Assistance.
- ⇒ Terrestrial Biodiversity Monitoring Protocol and Report for the Letšeng Diamond Mine in The Kingdom of Lesotho. For Letšeng Diamond Mine. In association with Pachnoda Consulting, Enviro-Insight, Ecocheck.
- ⇒ Faunal and Avifaunal Impact Assessment of the proposed expansion of mining activities at the Tronox Mine in the Western Cape Province. For Environmental Assurance. In association with Pachnoda Consulting.
- ⇒ Botanical walkdown and permitting assistance of the Frankfort – Windfield 88 kV Line near Frankfort in the Free State Province. For Eskom SOC.
- ⇒ Alien and invasive plant species management plan for the proposed NEO 1 Photovoltaic Development in The Kingdom of Lesotho. For Royal HaskoningDHV.
- ⇒ Terrestrial Biodiversity Screening Assessment of the proposed Dalpark Development in the Gauteng Province. For Mills & Otten Environmental Consults.
- ⇒ Amendment to the Ecological Assessment of the Bokpoort Photovoltaic Development in the Northern Cape Province. For Royal HaskoningDHV.
- ⇒ Terrestrial Biodiversity Assessment of the proposed Rosslyn Filling Station in the Gauteng Province. For Mills & Otten Environmental Consultants.

Computer Skills

- ⇒ MS Word
- ⇒ MS Excel
- ⇒ MS Access
- ⇒ GIS Arcview 3.2 (a)
- ⇒ Google Earth
- ⇒ Adobe Photoshop CS & Lightroom
- ⇒ Visual Basic Programming

Selected Reference Contact List

Company	Name	email
Bombela Operating Company	Thapelo Mndaweni	Thapelo.Mndaweni@bombelaop.co.za
ABO Energy	Kelli Ross	Kelli.Ross@aboenergy.com
Atana (prev Royal Haskoning DHV)	Prashika Reddy	prashika.reddy@rhdhv.com
Atana (prev Royal Haskoning DHV)	Seshni Govender	seshni.govender@atana.co.za
Atana (prev Royal Haskoning DHV)	Sibongile Gumbi	Sibongile.Gumbi@rhdhv.com
Cennergi	Evert de Jongh	evert.dejongh@cennergi.com
Chariot Energy Group	Leanna Janse van Rensburg	leannajvr@chariotenergygroup.com
Corobrik	Martha Monoke	Martha.Monoke@corobrik.co.za
Ecocheck Environmental Services	Dewald Kamffer	dewaldkamffer@gmail.com
Ecoleges	Cayley Hegyi	cayley@ecoleges.co.za
Ecoleges	Justin Bowers	justin@ecoleges.co.za
Ekoinfo cc	Willem de Frey	wdefrey@ekoinfo.co.za
Elemental Sustainability	Renate Steffens	renate@elemental-s.co.za
ENVASS	Marelize Potgieter	marilize@envass.co.za
Environamic	Ettienne van der Lith	info@environamic.co.za
Ernest & Young	Tasneem Steenkamp	Tasneem.Steenkamp@za.ey.com
Ernest & Young	Malcolm Roods	malcolm.roods@za.ey.com
Eskom	Nandi Mbili	MbiliNa@eskom.co.za
Eskom	Frederick Ludeke	ludekefj@eskom.co.za
Eskom	Mosima Ntshana	NtshanM6@eskom.co.za
Eskom	Bruce Burger	BurgerBJ@eskom.co.za
Feathers Environmental Consulting	Megan Diamond	megan@feathersenv.co.za
Karos Environmental	Dr Theo Mostert	MostertT@unizulu.ac.za
Letšeng Diamond Mine	Bongani Nthloko	ntlokob@letseng.co.ls
Mills & Otten	Kirstin Otten	kirstin@millsandotten.co.za
NCC Group	Lizl Koekemoer	lizlk@ncc-group.co.za
Pachnoda Consulting cc	Lukas Niemand	lukas@pachnoda.co.za
Samancor	Willem Den Heijer	Willem.DenHeijer@SamancorCr.com
Savannah SA	Jo-Anne Thomas	joanne@savannahsa.com
Savannah SA	Lenaldi Dames	lenaldi@savannahsa.com
Shangoni Management Services	Lee-Anne Fellows	leeanne@shangoni.co.za
Wetland Consulting Services	Gary Marnewick	GaryM@wetcs.co.za
WSP	Rudolph Greffrath	Rudolph.Greffrath@wsp.com
Zutari	Reuben Heydenrych	Reuben.Heydenrych@zutari.com

** this list represents an abridged selection of companies; additional contact details can be provided upon request*

Certification

To the best of my knowledge and belief, the above data correctly describes me, my qualifications and experience.



Riaan A. J. Robbeson (Pr.Sci.Nat.)



Universiteit van Pretoria

Die Raad en die Senaat verklaar hiermee dat die graad

Magister Scientiae met spesialisering in Plantkunde

met al die regte en voorregte daaraan verbonde by geleentheid van
'n kongregasie van die Universiteit toegeken is aan

RIAAN ANDRIES JAKOBUS ROBBESON

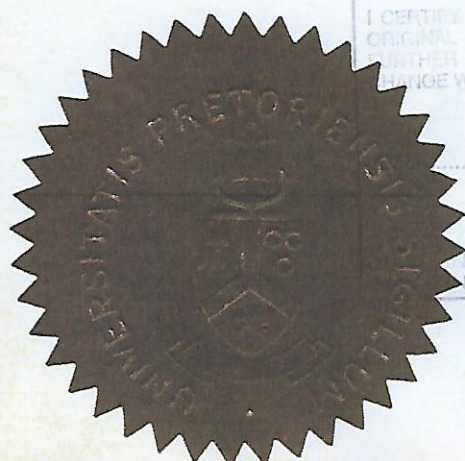
kragtens die Wet en Statuut van die Universiteit

Namens die Raad en die Senaat

Visekanselier en Rektor

Namens die Fakulteit
Biologiese en Landbouwetenskappe

Dekaan



I CERTIFY THAT THIS DOCUMENT IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT WHICH WAS PRESENTED TO ME FOR AUTHENTICATION. I FURTHER CERTIFY THAT NO ALTERATIONS, AN AMENDMENT OR A CHANGE WAS NOT MADE TO THE ORIGINAL DOCUMENT.

[Signature]
RANG 4
RANK 4
Druk: 4
PRINT 4

Registrateur

1998-09-11



herewith certifies that
Riaan Andries Jakobus Robbeson
Registration Number: 400005/03
is a registered 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 1 of the Act)

Ecological Science (Professional Natural Scientist)
Zoological Science (Certificated Natural Scientist)
Botanical Science (Professional Natural Scientist)

Effective **13 February 2003**

Expires **31 March 2026**



A handwritten signature in black ink, appearing to read 'S. Neph'.

Chairperson

A handwritten signature in black ink, appearing to read 'N. Erasmus'.

Chief Executive Officer



The Author started his career in the mining industry as a bursar Learner Official (JCI, Randfontein), working in the mining industry, doing various mining related courses (Rock Mechanics, Surveying, Sampling, Safety and Health [Ventilation, noise, illumination etc.] and Metallurgy. He did work in both underground (Coal, Gold and Platinum) as well as opencast (Coal) for 4 years. He changed course from Mining Engineering to Chemical Engineering after his second year of his studies at the University of Pretoria.

After graduation he worked as a Water Pollution Control Officer at the Department of Water Affairs and Forestry for two years (first year seconded from Wates, Meiring and Barnard), where duties included the perusal (evaluation, commenting and recommendation) of various regulatory required documents (such as EMPR's, Water Use License Applications and EIA's), auditing of license conditions as well as the compilation of Technical Documents.

Since leaving the Department of Water Affairs, Morné has been in private consulting for the last 20 years, managing various projects for the mining and industrial sector, private developers, business, other environmental consulting firms as well as the Department of Water Affairs. During that period he has been involved in various projects, either as specialist, consultant, trainer or project manager, successfully completing these projects within budget and timeframe. During that period he gradually moved towards environmental acoustics, focusing on this field exclusively since 2007.

He has been interested in acoustics as from school days, doing projects mainly related to loudspeaker design. Interest in the matter brought him into the field of Environmental Noise Measurement, Prediction and Control as well as blasting impacts. Since 2007 he has completed more than 300 Environmental Noise Impact Assessments, numerous Noise Monitoring Reports as well as various acoustic consulting services, including amongst others:

Wind Energy Facilities	<i>Full Environmental Noise Impact Assessments for - Bannf (Vidigenix), iNca Gouda (Aurecon SA), Isivunguvungu (Aurecon), De Aar (Aurecon), Kokerboom 1 (Aurecon), Kokerboom 2 (Aurecon), Kokerboom 3 (Aurecon), Kangnas (Aurecon), Plateau East and West (Aurecon), Wolf (Aurecon), Outeniwa (Aurecon), Umsinde Emoyeni (ARCUS), Komsberg (ARCUS), Karee (ARCUS), Kolkies (ARCUS), San Kraal (ARCUS), Phezukomoya (ARCUS), Canyon Springs (Canyon Springs), Perdekraal (ERM), Scarlet Ibis (CESNET), Albany (CESNET), Sutherland (CSIR), Kap Vley (CSIR), Kuruman (CSIR), Rietrug (CSIR), Sutherland 2 (CSIR), Perdekraal (ERM), Teekloof (Mainstream), Eskom Aberdene (SE), Dorper (SE), Spreeukloof (SE), Loperberg (SE), Penhoek Pass (SE), Amakhala Emoyeni (SE), Zen (Savannah Environmental – SE), Goereesoe (SE), Springfontein (SE), Garob (SE), Project Blue (SE), ESKOM Kleinsee (SE), Namas (SE), Zonnequa (SE), Walker Bay (SE), Oyster Bay (SE), Hidden Valley (SE), Deep River (SE), Tsitsikamma (SE), AB (SE), West Coast One (SE), Hopefield II (SE), Namakwa Sands (SE), VentuSA Gouda (SE), Dorper (SE), Klipheuwel (SE), INCA Swellendam (SE), Cookhouse (SE), Iziduli (SE), Msenge (SE), Cookhouse II (SE), Rhebokfontein (SE), Suurplaat (SE), Karoo Renewables (SE), Koningaas (SE), Spitskop (SE), Castle (SE), Khai Ma (SE), Poortjies (SE), Korana (SE), IE Moorreesburg (SE), Gunstfontein (SE), Boulders (SE), Vredenburg (Terramanzi), Loeriesfontein</i>
-------------------------------	--

		(SiVEST), Rhenosterberg (SiVEST), Noupoot (SiVEST), Prieska (SiVEST), Dwarsrug (SiVEST), Graskoppies (SiVEST), Philco (SiVEST), Hartebeest Leegte (SiVEST), Ithemba (SiVEST), IXha Boom (SiVEST), Spitskop West (Terramanzi), Haga Haga (Terramanzi), Vredenburg (Terramanzi), Msenge Emoyeni (Windlab), Wobben (IWP), Trakas (SiVest), Beaufort West (SiVest)
Mining and Industry	and	Full Environmental Noise Impact Assessments for – Delft Sand (AGES), BECSA – Middelburg (Golder Associates), Kromkrans Colliery (Geovicon Environmental), SASOL Borrow Pits Project (JMA Consulting), Lesego Platinum (AGES), Tweefontein Colliery (Cleanstream Environmental), Evraz Vametco Mine and Plant (JMA), Goedehoop Colliery (Geovicon), Hacra Project (Prescali Environmental), Der Brochen Platinum Project (J9 Environment), Brandbach Sand (AGES), Verkeerdepán Extension (CleanStream Environmental), Dwaalboom Limestone (AGES), Jagdlust Chrome (MENCO), WPB Coal (MENCO), Landau Expansion (CleanStream Environmental), Otjikoto Gold (AurexGold), Klipfontein Colliery (MENCO), Imbabala Coal (MENCO), ATCOM East Expansion (Jones and Wagner), IPP Waterberg Power Station (SE), Kangra Coal (ERM), Schoongesicht (CleanStream Environmental), EastPlats (CleanStream Environmental), Chapudi Coal (Jacana Environmental), Generaal Coal (JE), Mopane Coal (JE), Glencore Boshhoek Chrome (JMA), Langpan Chrome (PE), Vlakpoort Chrome (PE), Sekoko Coal (SE), Frankford Power (REMIG), Strahrae Coal (Ferret Mining), Transalloys Power Station (Savannah), Pan Palladum Smelter, Iron and PGM Complex (Prescali Environmental), Fumani Gold (AGES), Leiden Coal (EIMS), Colenso Coal and Power Station (SiVEST/EcoPartners), Klippoortjie Coal (Gudani), Rietspruit Crushers (MENCO), Assen Iron (Tshikovha), Transalloys (SE), ESKOM Ankerlig (SE), Nooitgedacht Titano Project (EcoPartners), Algoa Oil Well (EIMS), Spitskop Chrome (EMAssistance), Vlakfontein South (Gudani), Leandra Coal (Jacana), Grazvalley and Zoetveld (Prescali), Tjate Chrome (Prescali), Langpan Chromite (Prescali), Vereeniging Recycling (Pro Roof), Meyerton Recycling (Pro Roof), Hammanskraal Billeting Plant 1 and 2 (Unica), Development of Altona Furnace, Limpopo Province (Prescali Environmental), Haakdoordrift Opencast at Amandelbult Platinum (Aurecon), Landau Dragline relocation (Aurecon), Stuart Coal Opencast (CleanStream Environmental), Tetra4 Gas Field Development (EIMS), Kao Diamonds – Tipping Village Relocation (EIMS), Kao Diamonds – West Valley Tailings Deposit (EIMS), Upington Special Economic Zone (EOH), Arcelor Mittal CCGT Project near Saldanha (ERM), Malawi Sugar Mill Project (ERM), Proposed Mooifontein Colliery (Geovicon Environmental), Goedehoop North Residue Deposit Expansion (Geovicon Environmental), Mutsho 600MW Coal-Fired Power Plant (Jacana Environmentals), Tshivhaso Coal-Fired Power Plant (Savannah Environmental), Doornhoek Fluorspar Project (Exigo), Royal Sheba Project (Cabanga Environmental), Rietkol Silica (Jacana), Gruisfontein Colliery (Jacana), Lehlabile Colliery (Jaco-K Consulting), Bloemendal Colliery (Enviro-Insight), Rondevly Colliery (REC), Welgedacht Colliery (REC), Kalabasfontein Extension (EIMS), Waltloo Power Generation Project (EScience), Buffalo Colliery (Marang), Balgarthen Colliery (Rayten), Kusipongo Block C (Rayten), Zandheuvel (Exigo), NamPower Walvis Bay (GPT), Eloff Phase 3 (EIMS), Dunbar (Enviro-Insight), Smokey Hills (Prescali), Bierspruit (Aurecon)
Road and Railway	and	K220 Road Extension (Urbansmart), Boskop Road (MTO), Sekoko Mining (AGES), Davel-Swaziland-Richards Bay Rail Link (Aurecon), Moloto Transport Corridor Status Quo Report and Pre-Feasibility (SiVEST), Postmasburg Housing Development (SE), Tshwane Rapid Transport Project, Phase 1 and 2 (NRM Consulting/City of Tshwane), Transnet Apies-river Bridge Upgrade (Transnet), Gautrain Due-diligence (SiVest), N2 Piet Retief (SANRAL), Atterbury Extension, CoT (Bokomoso Environmental), Riverfarm Development (Terramanzi), Conakry to Kindia Toll Road (Rayten)
Airport		Oudtshoorn Noise Monitoring (AGES), Sandton Heliport (Alpine Aviation), Tete Airport Scoping (Aurecon)
Noise monitoring and Audit Reports		Peerboom Colliery (EcoPartners), Thabametsi (Digby Wells), Doxa Deo (Doxa Deo), Harties Dredging (Rand Water), Xstrata Coal – Witbank Regional (Xstrata), Sephaku Delmas (AGES), Amakhala Emoyeni WEF (Windlab Developments), Oyster Bay WEF (Renewable Energy Systems), Tsitsikamma WEF Ambient Sound Level study (Cennergi and SE), Hopefield WEF (Umoya), Wesley WEF (Innowind), Ncora WEF (Innowind), Boschmanspoort (Jones and Wagner), Nqamakwe WEF (Innowind), Hopefield WEF Noise Analysis (Umoya), Dassiesfontein WEF Noise Analysis (BioTherm), Transnet Noise Analysis (Aurecon), Jeffries Bay Wind Farm (Globeleq), Sephaku Aganang (Exigo), Sephaku Delmas (Exigo), Beira Audit (BP/GPT), Nacala Audit (BP/GPT), NATREF (Nemai), Rappa Resources (Rayten), Measurement Report for Sephaku Delmas (Ages), Measurement Report for Sephaku Aganang (Ages), Bank of Botswana measurements (Linnspace), Skukuza Noise Measurements (Concor), Development noise measurement protocol for Mamba Cement (Exigo), Measurement Report for Mamba Cement (Exigo), Measurement Report for Nokeng Fluorspar (Exigo), Tsitsikamma Community Wind Farm Pre-operation sound measurements (Cennergi), Waainek WEF Operational Noise Measurements

	<i>(Innowind), Sedibeng Brewery Noise Measurements (MENCO), Tsitsikamma Community Wind Farm Operational noise measurements (Cennerg), Noupoot Wind Farm Operational noise measurements (Mainstream), Twisdraai Colliery (Lefatshe Minerals), SASOL Prospecting (Lefatshe Minerals), South32 Klipspruit (Rayten), Sibanye Stillwater Kroondal (Rayten), Rooiberg Asphalt (Rooiberg Asphalt), SASOL Shondoni (Lefatshe), SASOL Twisdraai (Lefatshe), Anglo Mototolo (Exigo), Heineken Inyaniga (AECOM), Glencore Izimbiwa (Cleanstream) Glencore Impunzi (Cleanstream), Black Chrome Mine (Prescali) Sibanye Stillwater Ezulwini (Aurecon), Sibanye Stillwater Beatrix (Aurecon), Bank of Botswana (Linspace), Lakeside (Linspace), Skukuza (SiVest), Rietvlei Colliery (Jaco-K Consulting)</i>
Small Noise Impact Assessments	<i>TCTA AMD Project Baseline (AECOM), NATREF (Nemai Consulting), Christian Life Church (UrbanSmart), Kosmosdale (UrbanSmart), Louwlandia K220 (UrbanSmart), Richards Bay Port Expansion (AECOM), Babalegi Steel Recycling (AGES), Safika Slag Milling Plant (AGES), Arcelor Mittal WEF (Aurecon), RVM Hydroplant (Aurecon), Grootvlei PS Oil Storage (SiVEST), Rhenosterberg WEF, (SiVEST), Concerto Estate (BPTrust), Ekuseni Youth Centre (MENCO), Kranskop Industrial Park (Cape South Developments), Pretoria Central Mosque (Noman Shaikh), Soshanguve Development (Maluleke Investments), Seshego-D Waste Disposal (Enviroexcellence), Zambesi Safari Equipment (Owner), Noise Annoyance Assessment due to the Operation of the Gautrain (Thornhill and Lakeside Residential Estate), Upington Solar (SE), Ilangaletu Solar (SE), Pofadder Solar (SE), Flagging Trees WEF (SE), Uyekraal WEF (SE), Ruuki Power Station (SE), Richards Bay Port Expansion 2 (AECOM), Babalegi Steel Recycling (AGES), Safika Ladium (AGES), Safika Cement Isando (AGES), RareCo (SE), Struisbaai WEF (SE), Perdekraal WEF (ERM), Kotula Tsatsi Energy (SE), Olievenhoutbosch Township (Nali), , HDMS Project (AECOM), Quarry extensions near Ermelo (Rietspruit Crushers), Proposed uMzimkhulu Landfill in KZN (nZingwe Consultancy), Linksfield Residential Development (Bokomoso Environmental), Rooihuiskraal Ext. Residential Development, CoT (Plandev Town Planners), Floating Power Plant and LNG Import Facility, Richards Bay (ERM), Floating Power Plant project, Saldanha (ERM), Vopak Growth 4 project (ERM), Elandsport Ext 3 Residential Development (Gibb Engineering), Tiegerpoort Wedding Venue (Henwood Environmental), Monavoni Development (Marindzini), Rezoning of Portion 1 (Primo Properties), Tswaing Mega City (Makole), Mabopane Church (EP Architects), ERGO Soweto Cluster (Kongiwe), Fabio Chains (Marang), GIDZ JMP (Marang), Temple Complex (KWP Create), Germiston Metals (Dorean), Sebenza Metals (Dorean)</i>
Project reviews and amendment reports	<i>Loperberg (Savannah), Dorper (Savannah), Penhoek Pass (Savannah), Oyster Bay (RES), Tsitsikamma Community Wind Farm Noise Simulation project (Cennerg), Amakhala Emoyeni (Windlab), Spreeukloof (Savannah), Spinning Head (SE), Kangra Coal (ERM), West Coast One (Moyeng Energy), Rhebokfontein (Moyeng Energy), De Aar WEF (Holland), Quarterly Measurement Reports – Dangote Delmas (Exigo), Quarterly Measurement Reports – Dangote Lichtenburg (Exigo), Quarterly Measurement Reports – Mamba Cement (Exigo), Quarterly Measurement Reports – Dangote Delmas (Exigo) Quarterly Measurement Reports – Nokeng Fluorspar (Exigo), Proton Energy Limited Nigeria (ERM), Hartebeest WEF Update (Moorreesburg) (Savannah Environmental), Modderfontein WEF Opinion (Terramanzi), IPD Vredenburg WEF (IPD Power Vredenburg), Paul Puts WEF (ARCUS), Juno WEF (ARCUS), etc.</i>

Contact details for the Author are:

Author: Morné de Jager
Company: Enviro-Acoustic Research cc
Website: <http://www.eares.co.za>
Email: morne@eares.co.za
Office number: 012 004 0362
Mobile number: 082 565 4059

RUDOLPH GREFFRATH

Terrestrial Biodiversity Specialist

CAREER SUMMARY

Rudolph is a Principal Biodiversity Specialist based in WSP South Africa's Midrand office. He is a SACNASP-registered Professional Natural Scientist in ecology, with extensive experience in terrestrial ecology and biodiversity resource management.

He has 17 years' experience in large-scale projects, ranging from mining to renewable energy developments, specialising in biodiversity resource management, baseline assessments, biodiversity action planning, biodiversity offset design and implementation, biodiversity strategy development, conservation management planning and implementation, IFC Performance Standard 6 good international industry practice, ecological restoration, ecosystem services, environmental and social due diligence, and environmental impact assessments across Africa. He also has extensive experience in biodiversity, fauna and flora, critical habitat, and ecosystem services assessments.

In his role as Project Biodiversity Specialist, he works as part of multidisciplinary teams and has strong insight into environmental and ecosystem services considerations that may affect project schedules and delivery.

Rudolph is also involved in obtaining regulatory permits for clients, including planning relocation strategies for protected and endangered plant species in areas proposed for development. This includes planning and executing data-gathering surveys and thereafter managing engagement with relevant provincial and national authorities to secure the permits required for development to proceed.

Rudolph's technical expertise includes knowledge and working experience in the following:

- Environmental Impact Assessments (EIAs), Basic Assessments and Environmental Management Plans (EMPs) for environmental authorisations in terms of the South African National Environmental Management Act (NEMA), 1998 (Act 107 of 1998);
- Implementation of Government Notice 320 (dated 20 March 2020) and Government Notice 1150 (dated 30 October 2020) in terms of NEMA: "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a), 24(5)(h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation";
- Natural capital assessment and accounting, including the identification, assessment, quantification and integration of nature-related assets, risks and dependencies into clients' sustainability frameworks and corporate decision-making processes;
- Environmental pre-feasibility studies for gold tailings reclamation and iron ore and coal mining projects;
- Convention on Biological Diversity, Strategic Planning for Biodiversity, Mechanisms for implementation, Cooperation and Partnerships;
- Business and Biodiversity Offsets Programme standards and guidance on biodiversity offsets;
- International Finance Corporation (IFC)-related projects across Central and West Africa, including the application of IFC Performance Standards, Equator Principles and IFC Environmental, Health and Safety Guidelines;
- International Council for Mining and Metals, Conservation of Biodiversity and Integrated approaches to land use planning;
- European Investment Bank; application of sustainability principles, such as those of the International Finance Corporation (part of the World Bank Group), in particular on biodiversity. Standard 3 on Biodiversity and Ecosystems, as part of the EIB Environmental and Social Standards;
- Environmental and Social Impact Assessments (ESIA) for Environmental Authorisation;



RUDOLPH GREFFRATH

Terrestrial Biodiversity Specialist

- Biodiversity offset studies, including the determination of offset liability and application of the mitigation hierarchy and IFC Performance Standard 6 good international industry practice;
- Large Mammal Monitoring Projects;
- Biodiversity assessments, including mammal, avifauna, herpetofauna and arthropod assessments, and EIA-based assessment of impacts on the terrestrial ecological environment;
- Geographic Information Systems (GIS), including frequent use of ArcGIS and QGIS;
- Biodiversity Action Plan design and implementation;
- Biodiversity and land management programmes;
- Protected plant species management strategies planning and implementation;
- Monitoring of rehabilitation success by means of vegetation establishment;
- Rehabilitation planning;
- Environmental auditing of rehabilitated areas;
- Project management of ecological specialist studies;
- Planning and design of rehabilitation offset strategies.

2.1 years with WSP

17 years of experience

Area of expertise

Terrestrial Ecology

Language

English

EDUCATION

BTech Degree in Nature Conservation, Nelson Mandela Metropolitan University (NMMU)	2005–2006
National Diploma in Nature Conservation, Nelson Mandela Metropolitan University (NMMU)	2001–2004

ADDITIONAL TRAINING

Measurements of Biodiversity, University of the Free State, led by Prof. M. T. Seaman.	September 2008
IFC Performance Standards implementation training, Lee-Ann Joubert	January 2013
Bird identification course led by Ettiene Marais	November 2009
Introduction to VEGRAI and eco-classification, led by Dr James Mackenzie December 2009 and January 2018	
Dangerous snake handling and snakebite treatment with Mike Perry	2011, 2015
Rehabilitation of mine-impacted areas, with Fritz van Oudtshoorn, Dr Wayne Truter and Gustav le Roux	2011



RUDOLPH GREFFRATH

Terrestrial Biodiversity Specialist

First Aid Level 2, School of Emergency and Critical Care, Netcare	2013
First Aid Level 2, National First Aid Academy	2017, 2025
TNFD Natural Capital Accounting Europe,	2025
ICMM Workshop Europe and North America	2025

PROFESSIONAL MEMBERSHIPS

South African Council for Natural Scientific Professions, Professional Natural Scientist in the field of Conservation Science, registration number 400018/17	9 years
IAIA, International Association for Impact Assessment	8 years
Botanical Society of South Africa;	8 years
The Land Rehabilitation Society of Southern Africa, LARSA (Membership No. 0085);	8 years
Grassland Society of Southern Africa.	8 years

PROFESSIONAL HISTORY

WSP Group Africa (Pty) Ltd., Principal Ecologist	2024–Current
Founder, Owner, AES Eco Solutions, Johannesburg.	2021 - 2024
Senior Biodiversity Specialist, ERM, Johannesburg	2020–2021
Digby Wells Environmental, Johannesburg, International Manager: Group Biodiversity	2016–2019
Digby Wells Environmental, Johannesburg, International. Unit Manager: Fauna, Flora and Wetlands	2011-2016
Digby Wells and Associates, Johannesburg, South Africa. Senior Consultant.	2009-2011
Digby Wells and Associates, Johannesburg, South Africa. Consultant	2006-2009
Shamwari Game Reserve, Eastern Cape, South Africa	2002-2003
Kop-Kop Geotechnical Instrumentation Specialists, Johannesburg, South Africa	2001

PROJECT EXPERIENCE

Sibanye Stillwater Natural Capital Accounting, Sibanye Europe, Australia and North America, Biodiversity Author, 2025–2026
Biodiversity Author for Finland Operations

Abosso Goldfields, Damang Gold Mine, Ghana, Biodiversity and Closure documents, 2025-2026
Biodiversity Senior Reviewer

Mulilo Renewable Energy Developments, Verkykerskop Wind Energy Cluster, Free State, 2025–2026,
Biodiversity Offset Report Author.

Mulilo Renewable Energy Developments, Stormberg and Newcastle WEFs, KwaZulu-Natal, 2025–2026,
Biodiversity ESDD Reviewer and Lead Author.



RUDOLPH GREFFRATH

Terrestrial Biodiversity Specialist

Mulilo Renewable Energy Developments, Ukuqala and Du Plessis Dam Critical Habitat Assessments, Northern Cape, 2025. Biodiversity Lead Author.

Standard Bank Limited/Merchant Energy, Lenders' Environmental and Social Due Diligence for the Wipoortjie Renewable Energy Project, 2025–2026, Biodiversity Lead Author.

Mingomba Mining Limited, Underground Copper Mine ESIA, Zambia, 2025–2026, Terrestrial Ecology Lead Author.

Transnet National Ports Authority, Port of Richards Bay, Berth 605 Biodiversity Offset Report, 2025–2026, Richards Bay, Lead Author.

Tronox KZN Sands, Port Dunford Mine IEA, Richards Bay, 2025, Biodiversity Offset Report. Lead Author.

Meridiam SAS, Kipeto Wind Energy Facility Due Diligence, Kenya, 2025–2026. Biodiversity Lead Author.

HDF Energy Renewstable Power Plants, Mpumalanga South Africa, 2023-2024

Terrestrial Biodiversity Lead.

Responsible for the Terrestrial Ecology specialist functions from Scoping through to EIA phases.

Khanyazwe Flexpower Gas Power Plant, Malelane, South Africa 2023-2024

Terrestrial Biodiversity Lead.

Responsible for the Terrestrial Ecology specialist functions from Scoping through to EIA phases.

Eskom Distribution Perseus-Zeus walkdown, Free State, Mpumalanga, Gauteng Provinces. 2023-2024

Terrestrial Biodiversity Lead.

Responsible for the Terrestrial Ecology specialist functions from Scoping through to EIA phases.

Everest SPP, Distribution Lines, BESS, Welkom, Free State. 2023-2024

Terrestrial Biodiversity Lead.

Responsible for the Terrestrial Ecology specialist functions from Scoping through to EIA phases.

Client Confidential, Two Solar Power Plants, Kathu, Northern Cape 2023

Terrestrial Biodiversity Lead.

Responsible for the Terrestrial Ecology specialist functions from Scoping through to EIA phases.

Engie SPP, Free State, South Africa 2024

Terrestrial Biodiversity Lead.

Dwarf succulent inventory and relocation strategies.

Randgold Resources Limited, Tongon Off-set project, Ivory Coast, 2012-15

Project Lead Technical Specialist

Applied IFC, BBOP and other good-practice guidelines in designing an offset project for the residual impacts of the Tongon Gold Mine.



RUDOLPH GREFFRATH

Terrestrial Biodiversity Specialist

DPN Direction des Parcs Nationaux du Sénégal, Annual Large Mammal Monitoring in the Niokola Koba National Park, Senegal, 2018/19 Aerial game counter, project specialist

Applied aerial, ground and vehicle-based large mammal monitoring techniques in the National Park.

Barrick Gold, Biodiversity Management for Massawa Gold Mine, Senegal 2015, Project management

Following the discovery of Western Chimpanzees in close proximity to the project area, detailed fieldwork was conducted by internationally recognised experts, leading to the development of various mitigation measures. Completed in accordance with IFC Performance Standard 6.

CIC energy, Mmamabula Energy Project (MEP)., Botswana 2010-2013 Technical Specialist Ecologist,
Construction of a railway, opencast mine, wellfield, conveyors, adits and housing.

Orlight SA, Orlight Solar PV Power Project, South Africa, 2015–2016 Technical Specialist

Ecologist for the Environmental Impact Assessment (EIA) process for five proposed solar photovoltaic (PV) power plants.

CSIR, Twenty Nine Capitol, South Africa, 2018 Technical Specialist

Ecologist for photovoltaic power stations.

Randgold Resources Limited, Tongon Biodiversity Land Management Plan, Ivory Coast

2014 Technical Specialist Ecologist,

Project manager for the design, compilation and implementation of the BLMP. Completed in accordance with IFC Performance Standard 6.

Randgold Resources Limited, Kibali Gold mine, DRC Congo 2010-2017

Technical Specialist Ecologist

Gold mine infrastructure. Completed in accordance with IFC Performance Standard 6.

Randgold Resources Limited, Kibali Gold mine, DRC Congo 2016

Technical Specialist Ecologist

ESIA update. Completed in accordance with IFC Performance Standard 6.

Randgold Resources Limited, Nzoro Hydroelectric station, DRC Congo 2014

Technical Specialist Ecologist

Hydroelectric plant. Completed in accordance with IFC Performance Standard 6.

Randgold Resources Limited, Loulo Biodiversity Land Management Plan, Mali

2015-2017 Technical Specialist Ecologist, Project Manager

Design, compilation and implementation of the BLMP. Completed in accordance with IFC Performance Standard 6.

Koidu Diamond Mine, Mali 2014 Technical Specialist Ecologist, Project Manager

Design, compilation and implementation of the BLMP. Completed in accordance with IFC Performance Standard 6.



PUBLICATIONS

Biodiversity Action Plans for faunal habitat maintenance and expansion in mining. Poster presented at the 48th Annual Grassland Society of Southern Africa (GSSA) conference.

Limpopo Province, South Africa – the biodiversity perspective. Paper presented at the Limpopo Minerals Conference and Trade Show, hosted by the Fossil Fuel Foundation and LEDET, 2015/11/11.

Sustainability and Biodiversity Strategic Planning, Randgold Resources, 2018.

Niokola Koba National Park, Senegal. Annual Census of Large Mammals, contributing author, 2018.

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that
Rudolph Johannes Greffrath

Registration Number: 400018/17

is a registered 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 1 of the Act)

Conservation Science (Professional Natural Scientist)

Effective **25 January 2017**

Expires **31 March 2027**



President of Council

Chief Executive Officer



To verify this certificate scan this code

CONSULTANT CURRICULUM VITAE

NAME : DEBRA MITCHELL

EDUCATION :

BSc Chemical Engineering (Cape Town) 1985
BA Psychology, Economics (UNISA) 1995
MSc Process Safety & Loss Prevention (U. Sheffield UK) 2004
(Distinction)

AFFILIATIONS :

Professional Engineer
Member of SA Institute of Chemical Engineering
ISHECONcc is an Approved Inspection Authority for Major Hazard Installations and for Explosives
SANAS ISO 17020 Technical Auditor
Chairman of SABS TC292 Sub-committee for compilation of SANS1461- MHI RA Standard
Member of DEL TC for compilation of Guidelines for the New MHI Regulations.



WORK EXPERIENCE:

- | | |
|-------------|--|
| 1999 – now | Formed Ishecon c.c. with two partners as a management-buy-out of the SHE Consulting Group of AECI Engineering. Assignments include MHI Risk Assessments (40 per year), Hazops (12 per year), PHA's, Hazardous Area Classifications, Occupied Building Studies, Qualitative Risk Assessments. Presentation of process safety training courses and auditing of MHI AIAs. |
| 1997 - 1999 | AECI Engineering Pty (Ltd), Modderfontein. Chemical Engineering Department. Risk assessments and Hazard Studies for AECI projects. |
| 1991 - 1997 | Sasol Synthetic Fuels and Sastech, Secunda, Senior Process & Environmental Engineer, Seconded to Foster Wheeler UK for 6 months. |
| 1987 – 1991 | SAPPI, Ngodwana, Technical Superintendent, responsible for management of a team on an applied research and development effluent recovery pilot plant. |
| 1986 - 1987 | Atomic Energy Corporation, Engineer-in-training, process engineering design. |



UNIVERSITY OF CAPE TOWN

with which is incorporated the South African College

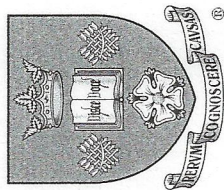
Degree of Bachelor of Science in Engineering

We hereby certify that DEBRA CATHERINE MITCHELL
obtained the Degree of Bachelor of Science in Engineering in the
year 1985 in CHEMICAL ENGINEERING.

Vice-Chancellor

Registrar

Cape Town, 12 DECEMBER, 1985.



It is hereby certified that

Debra Catherine Mitchell

having fulfilled the requirements prescribed by Ordinances and after
due examination was awarded the degree of

Master of Science in Engineering

of this University
in Process Safety and Loss Prevention

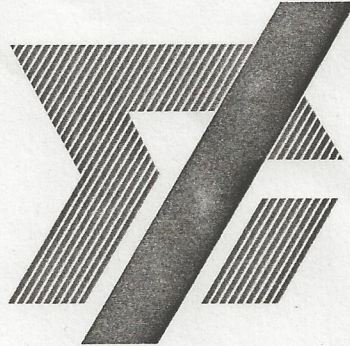
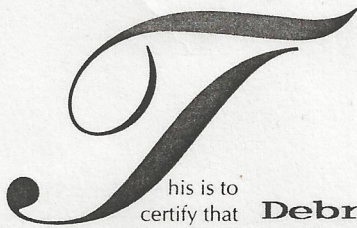
on 12 November 2004

with Distinction

Vice-Chancellor

Registrar and Secretary

Engineering Council of South Africa



his is to
certify that

Debra Catherine Mitchell

is registered as **Professional Engineer**

in terms of the Engineering Profession of South Africa Act, 1990 (Act 114 of 1990)

date **4 December 1990**

registration number **900554**

President

Registrar





14 APPENDIX 1: SYNOPTIC CV: REINIER F. TERBLANCHE

Reinier is an ecologist and in particular a habitat specialist with an exceptional combination of botanical and zoological expertise which he keeps fostering, updating and improving. He is currently in the process of completing a PhD research project for which he registered at the Department of Conservation Ecology at the University of Stellenbosch, focussing on the landscape ecology of selected terrestrial and wetland butterflies in South Africa. Reinier's experience includes being a lecturer in ecology and zoology at the North West University, Potchefstroom Campus (1998-2008). Reinier frequently collaborates with institutes, organizations and universities on animal, plant and habitat research.

Qualifications:

Qualification	Main subject matter	University
M.Sc. <i>Cum Laude</i> , 1998: Botany: Ecology	Quantitative study of invertebrate assemblages and plant assemblages of rangelands in grasslands.	North-West University, Potchefstroom
B.Sc. Hons <i>Cum Laude</i> , 1992: Botany: Taxonomy	Distinctions in all subjects: Plant Anatomy, Taxonomy, Modern Systematics, System Modelling, Plant Ecology, Taxonomy Project, Statistics Attendance Course.	North-West University, Potchefstroom
B.Sc. Botany, Zoology	Main subjects: Botany, Zoology.	North-West University, Potchefstroom
Higher Education Diploma, 1990	Numerous subjects aimed at holistic training of teachers.	North-West University, Potchefstroom

In research, Reinier specializes in conservation biology, threatened butterfly species, vegetation dynamics and ant assemblages at terrestrial and wetland butterfly habitats as well as enhancing quantitative studies on butterflies of Africa. He has published extensively in the fields of taxonomy, biogeography and ecology in popular journals, peer-reviewed scientific journals and as co-author and co-editor of books (see 10 examples below).

Reinier practices as an ecological consultant and has been registered as a Professional Natural Scientist by SACNASP since 2005 (Reg. No. 400244/05). His experience in consultation includes:

- ⇒ Flora and fauna habitat surveys;
- ⇒ Threatened species assessments;
- ⇒ Riparian vegetation index surveys;
- ⇒ Compilation of Ecological Management Plans;
- ⇒ Biodiversity Action Plans;
- ⇒ Status quo of biodiversity for Environmental Management Frameworks;
- ⇒ Wetland Assessments; and
- ⇒ Management of Rare Wetland Species.

Recent activities/awards:

- ⇒ Best Poster Award at Oppenheimer De Beers Group Research Conference 2015, Johannesburg;
- ⇒ Co-author of Guidelines for Standardised Global Butterfly Monitoring, 2015, Group on Earth Observations Biodiversity Observation Network, Leipzig, Germany (UNEP-WCMC), GEO BON Technical Series 1;
- ⇒ Awarded the prestigious Torben Larsen Memorial Tankard in October 2017; awarded annually to the person responsible for the most outstanding written account on Afrotropical Lepidoptera;
- ⇒ Lectured as Conservationist-in-Residence in the Wildlife Conservation Programme of the African Leadership University, Kigali, Rwanda, 9-23 February 2019.
- ⇒ Won a photographic competition which resulted in his photograph of the Critically Endangered *Erikssonia edgei* (Waterberg Copper) being published on the front cover of the Synthesis Report of the National Biodiversity Assessment (2018) prepared by SANBI.

**Experience:**

Lecturer: Zoology (1998-2008)	Main subject matter and level	Organization
Lectured subjects	- 3 rd year level - Ecology, Plant Parasitology - 2 nd year level - Ethology <i>Master's degree</i> Evolutionary Ethology, Systematics in Practice, Morphology and Taxonomy of Insect Pests, Wetlands.	North-West University, Potchefstroom and University of South Africa
Co-promoter	PhD: Edge, D.A. 2005. Ecological factors that influence the survival of the Brenton Blue butterfly	North-West University, Potchefstroom
Study leader/assistant study leader	Six MSc students, One BSc Honours student: Various quantitative biodiversity studies (terrestrial and aquatic).	North-West University, Potchefstroom
Teacher (1994-1998)	Biology and Science, Secondary School	Afrikaans Hoër Seunskool, Pretoria
Owned Anthene Ecological CC (2008 – present)	- Flora and Fauna habitat surveys - Highly specialized ecological surveys - Riparian vegetation index surveys - Ecological Management Plans - Biodiversity Action Plans - Biodiversity section of Environmental Management Frameworks - Wetland assessments	Private Closed Corporation that has been subcontracted by many companies
Herbarium assistant 1988-1991	Part-time assistant at the A.P. Goossens Herbarium, Botany Department, North-West University, 1988, 1989, 1990 and 1991 (as a student).	North-West University, Potchefstroom

EXAMPLES OF PUBLICATIONS OF WHICH R.F. TERBLANCHE IS AUTHOR/CO-AUTHOR

(Three books, two chapters in books and five articles are listed here as examples)

1. HENNING, G.A., **TERBLANCHE, R.F.** & BALL, J.B. (eds). **2009.** *South African Red Data Book: butterflies.* SANBI Biodiversity Series 13. South African National Biodiversity Institute, Pretoria. 158p. ISBN 978-1-919976-51-8.
2. MECENERO, S., BALL, J.B., EDGE, D.A., HAMER, M.L., HENNING, G.A., KRÜGER, M., PRINGLE, E.L., **TERBLANCHE, R.F.** & WILLIAMS, M.C. (eds). **2013.** *Conservation Assessment of Butterflies of South Africa, Lesotho and Swaziland: Red List and atlas.* Saftronics (Pty) Ltd., Johannesburg & Animal Demography Unit, Cape Town.
3. VAN SWAAY, C., REGAN, E., LING, M., BOZHINOVSKA, E., FERNANDEZ, M., MARINI-FILHO, O.J., HUERTAS, B., PHON, C.-K., KÖRÖSI, A., MEERMAN, J., PE'ER, G., UEHARA-PRADO, M., SÁFIÁN, S., SAM, L., SHUEY, J., TARON, D., **TERBLANCHE, R.F.** & UNDERHILL, L. **2015.** Guidelines for Standardised Global Butterfly Monitoring. Group on Earth Observations Biodiversity Observation Network, Leipzig, Germany. GEO BON Technical Series 1.
4. **TERBLANCHE, R.F.** & HENNING, G.A. **2009.** *A framework for conservation management of South African butterflies in practice.* In: Henning, G.A., Terblanche, R.F. & Ball, J.B. (eds). *South African Red Data Book: Butterflies.* SANBI Biodiversity Series 13. South African National Biodiversity Institute, Pretoria. p. 68 – 71.
5. EDGE, D.A., **TERBLANCHE, R.F.**, HENNING, G.A., MECENERO, S. & NAVARRO, R.A. **2013.** Butterfly conservation in southern Africa: Analysis of the Red List and threats. In: Mecenero, S., Ball, J.B., Edge, D.A., Hamer, M.L., Henning, G.A., Krüger, M., Pringle, E.L., Terblanche, R.F. & Williams, M.C. (eds). *Conservation Assessment of Butterflies of South Africa, Lesotho and Swaziland: Red List and Atlas.* pp. 13-33. Saftronics (Pty) Ltd., Johannesburg & Animal Demography Unit, Cape Town.
6. **TERBLANCHE, R.F.**, SMITH, G.F. & THEUNISSEN, J.D. **1993.** Did Scott typify names in *Haworthia* (Asphodelaceae: Aloioideae)? *Taxon* **42**(1): 91-95. (International Journal of Plant Taxonomy).
7. **TERBLANCHE, R.F.**, MORGENTHAL, T.L. & CILLIERS, S.S. **2003.** The vegetation of three localities of the threatened butterfly species *Chrysoritis aureus* (Lepidoptera: Lycaenidae). *Koedoe* **46**(1): 73-90.
8. EDGE, D.A., CILLIERS, S.S. & **TERBLANCHE, R.F.** **2008.** Vegetation associated with the occurrence of the Brenton blue butterfly. *South African Journal of Science* **104**: 505-510.
9. GARDINER, A.J. & **TERBLANCHE, R.F.** **2010.** Taxonomy, biology, biogeography, evolution and conservation of the genus *Erikssonia* Trimen (Lepidoptera: Lycaenidae) *African Entomology* **18**(1): 171-191.
10. **TERBLANCHE, R.F.** **2016.** *Acraea trimeni* Aurivillius, [1899], *Acraea stenobea* Wallengren, 1860 and *Acraea neobule* Doubleday, [1847] on host-plant *Adenia repanda* (Burch.) Engl. at Tswalu Kalahari Reserve, South Africa. *Metamorphosis* **27**: 92-102.