

## CURRICULUM VITAE

### ALICIA GOVENDER

*Profession* : *Environmental Consultant*

*Years experience* : *3.5 years in the environmental field*

#### KEY RESPONSIBILITIES

- Professional execution of consulting services
- Reporting for a variety of projects
- Review of specialist reports
- Authority Consultation
- Site visits
- ECO audits
- ECO reports
- Attendance at EMC Meetings
- Minute taking
- Attendance at Tender Briefings
- Preparation of Tenders
- Put together Budgets
- Project Research
- Advise on South African legislation
- Liaison with Government officials, specialists and I&APs
- Representative at project team meetings
- Compose and Issue Letters of Appointments to Specialists
- Involvement in the Public Participation process
  - Presentations at Public Meetings
  - Preparation of presentations
  - Arrange meetings
  - Preparation of content of newspaper adverts
  - Letters to stakeholders and I&APs
  - Identification of I&APs
  - Compose and maintain stakeholder database
  - Continuous communication with I&APs
  - Obtaining landowner details using deed search
  - Working with landowner maps

#### SKILLS BASE AND CORE COMPETENCIES

- Microsoft office
- Geographic Information Systems (ArcView 8.3, ArcMap, Idrisi) (to 3<sup>rd</sup> year level)

#### EDUCATION AND PROFESSIONAL STATUS

##### ***Degrees:***

- 2004 - 2006, B.Sc (*Social Science*), Geography and Environmental Management, University of KwaZulu-Natal
- 2010, B.Sc. (*Honours*), Environmental Management, University of South Africa

## **SELECTED RELEVANT PROJECT EXPERIENCE**

- EIA & EMP for the upgrade of the Hartebeestfontein Wastewater Care Works: ERWAT
- EIA & EMP for the extension of the Welgedacht Wastewater Care Works: ERWAT
- Operational EMP for the Medupi Power Station: Eskom
- Educational Booklet for the Environmental Management Plan for Medupi Power Station construction
- ECO Audit Reports for De Hoop Dam: DWA
- Public Participation for the Tshwane Strengthening Project:-Phase1: Eskom Transmission
- Basic Assessment for Wind Monitoring Masts for sites-Laingsburg and Beaufort West: Umoya
- Basic Assessments for Wind Monitoring Masts for properties-North of Koekenaap: Mulilo
- Basic Assessment & EMP for the Proposed Bus and Taxi facility in the Dilokong Area, Limpopo Province: SANRAL
- Basic Assessment for Proposed establishment of wind monitoring masts on two sites East of Cape Town in the Overberg near Boontjieskraal in the Western Cape: BioTherm Energy (Pty) Ltd
- EIA for the proposed wind energy facility near Caledon in the Overberg area in the Western Cape Province: BioTherm Energy (Pty) Ltd
- EIA for the proposed construction of the Ngotwane River Bridge and P224-1 road upgrade between South Africa and Botswana: SANRAL.
- EIA for the proposed Exxaro West Coast Wind Farm Development, north west of Vredendal in the Western Cape Province: Exxaro Resources
- Public Participation for the Arggeneis- Oranjemond Transmission Line in the Northern Cape: Eskom Transmission
- ECO monitoring for the rehabilitation of Blaauwpan and associated storm water channel, Gauteng: Airports Company South Africa (ACSA).
- EIA for the proposed Ilanga Solar Thermal Power Plant as Part of the Future Karoshoek Solar Thermal Park, Northern Cape: Ilangalethu Solar Power (Pty) Ltd
- Public Participation for the new proposed Coal fired power station near Oggies/Phola, Mpumalanga Province: Rukki SA.
- Basic Assessment for Wind Energy Facility near Koingnaas, Northern Cape Province: Just Palmtree Power.
- EIA for the proposed Photovoltaic Facility on a site South-East of De Aar, Northern Cape: INCA De Aar (Pty) Ltd
- Basic Assessment for Project Blue Wind Energy Facility near Kleinzee, Northern Cape Province: WWK Development (Pty) Ltd
- EIA for the proposed Kleinzee 300 MW wind energy facility, Northern Cape Province: Eskom Generation
- Basic Assessment and Public Participation for Remediation of Asbestos Contaminated Land in Limpopo and KZN Provinces: Transnet Freight Rail

## **CURRICULUM VITAE**

### **JO-ANNE THOMAS**

*Profession* : *Environmental Consultant*  
*Specialisation* : *Environmental Management; Strategic environmental advice; Environmental compliance advice & monitoring; Environmental Impact Assessments; Policy, strategy & guideline formulation; Project Management; General Ecology*  
*Years experience* : *12 years in the environmental field*

#### **KEY RESPONSIBILITIES**

Provide technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Key focus on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management; review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures. Compilation of the reports for environmental studies is in accordance with all relevant environmental legislation.

Undertaking of numerous environmental management studies has resulted in a good working knowledge of environmental legislation and policy requirements. Recent projects have been undertaken for both the public- and private-sector, including compliance advice and monitoring, electricity generation and transmission projects, various types of linear developments (such as National Road, local roads and power lines), waste management projects (landfills), mining rights and permits, policy, strategy and guideline development, as well as general environmental planning, development and management.

#### **SKILLS BASE AND CORE COMPETENCIES**

- Project management for a range of projects
- Identification and assessment of potential negative environmental impacts and benefits through the review and manipulation of data and specialist studies
- Identification of practical and achievable mitigation and management measures and the development of appropriate management plans
- Compilation of environmental reports in accordance with relevant environmental legislative requirements
- External and peer review of environmental reports & compliance advice and monitoring
- Formulation of environmental policies, strategies and guidelines
- Strategic and regional assessments; pre-feasibility & site selection
- Public participation processes for a variety of projects
- Strategic environmental advice to a wide variety of clients both in the public and private sectors
- Working knowledge of environmental planning processes, policies, regulatory frameworks and legislation

## **EDUCATION AND PROFESSIONAL STATUS**

- 1993: B.Sc Earth Sciences, University of the Witwatersrand, Johannesburg.
- 1994: B.Sc (Hons) in Botany, University of the Witwatersrand, Johannesburg.
- 1996: M.Sc in Botany, University of the Witwatersrand, Johannesburg.
- 1998: Environmental Impact Assessment, Potchefstroom University.
- 2001: Environmental Law, Morgan University.
- Professional Natural Scientist (Registration No 400024/00).

## **EMPLOYMENT**

- Current: Director of Savannah Environmental (Pty) Ltd. Independent specialist environmental consultant.
- October 1997 - November 2005: Bohlweki Environmental (Pty) Ltd: Senior Environmental Scientist; Environmental Management and Project Management.
- January - July 1997: Junior Science Teacher, Sutherland High School, Pretoria.

## **PROJECT EXPERIENCE**

### ***Electricity Sector Projects: Wind Energy***

- Project manager for the proposed Klipheuwel/Dassiesfontein wind energy facility and associated infrastructure at a site within the Overberg area of the Western Cape (for BioTherm Energy)
- Project manager for the proposed Suurplaat wind energy facility and associated infrastructure at a site within the Western Cape (for Moyeng Energy)
- Project manager for the proposed West Coast One wind energy facility and associated infrastructure at a site within the Western Cape (for Moyeng Energy)
- Project manager for the proposed Rheboksfontein wind energy facility and associated infrastructure at a site within the Western Cape (for Moyeng Energy)
- Project manager for the proposed EXXARO West Coast wind energy facility and associated infrastructure at a site within the Western Cape (for EXXARO Resources)
- Project manager for the proposed Oyster Bay wind energy facility, Eastern Cape Province (for Renewable Energy Resources Southern Africa)
- Project manager for the proposed Spitskop Bay wind energy facility, Eastern Cape Province (for Renewable Energy Resources Southern Africa)
- EIA and EMP for the proposed wind energy facility and associated infrastructure at a site within the Western Cape (for Eskom Generation)
- EIA and EMP for the proposed wind energy facility and associated infrastructure at a site near Hopefield, Western Cape Province (for Umoya Energy)

### ***Electricity Sector Projects: Solar Energy***

- Project manager for the EIA and EMP for the proposed Waterberg PV plant, Limpopo Province (for Thupela Energy)
- Project manager for the EIA and EMP for the proposed Project Ilanga (125MW CSP facility) near Upington, Northern Cape Province (for Ilangethu Energy)
- Project manager for the EIA and EMP for PV sites within the Northern cape Province (for MedEnergy Global)
- Project manager for the Basic Assessment and EMP for PV sites within 4 ACSA airports within South Africa (for ACSA PV)
- Project manager for the Basic Assessment and EMP for a PV site near Rustenburg, North-West Province (for Momentous Energy)

### ***Electricity Sector Projects: Eskom***

- Project manager for the EIA and EMP for the proposed Mokopane Integration Project, Limpopo Province (for Eskom Transmission)
- Project manager for the proposed transmission lines from the Koeberg-2 Nuclear Power Station site, Western Cape Province (for Eskom Transmission)
- Project manager for the proposed Tshwane strengthening project, Phase 1, Gauteng Province (for Eskom Transmission)
- Project manager for the EIA and EMP for the proposed Kyalami Strengthening Project, Gauteng Province (for Eskom Transmission)
- Project manager for the EIA and EMP for the proposed Steelpoort Integration Project, Limpopo Province (for Eskom Transmission)
- Project manager for the EIA and EMP for the proposed conversion of the existing Open Cycle Gas Turbine (OCGT) Ankerlig Power Station (located in Atlantis Industria) to a Combined Cycle Gas Turbine (CCGT) power station, and the associated 400 kV transmission power line between Ankerlig Power Station and the Omega Substation (for Eskom Generation)
- Project manager for the EIA and EMP for the proposed conversion of the existing Open Cycle Gas Turbine (OCGT) Gourikwa Power Station (located near Mossel Bay) to a Combined Cycle Gas Turbine (CCGT) power station, and the associated 400 kV transmission power line between Gourikwa Power Station and the Proteus Substation (for Eskom Generation)
- Basic Assessment for proposed wind monitoring masts on a site north of Koekenaap, Western Cape Province (for EXXARO Resources)
- Basic Assessment for proposed wind monitoring masts on a site in the Overberg area, Western Cape Province (for BioTherm Energy)
- Basic Assessment for proposed wind monitoring masts on a site near Beaufort West, Western Cape Province (for Umoya Energy)
- Basic Assessment for proposed wind monitoring masts on a site near Laingsburg, Western Cape Province (for Umoya Energy)

### ***Compliance Monitoring***

- ECO compliance monitoring for the construction of the De Hoop Dam and the deviation of the R555, Limpopo Province
- Project manager – ECO compliance monitoring for the rehabilitation of Blaauwpan Dam, Gauteng Province
- Project manager – ECO compliance monitoring for the expansion of Waterval WCW, Gauteng Province
- Project manager - ECO compliance monitoring for the Mine Water Recovery Project at Duvha Power Station, Mpumalanga Province

### ***Strategic and Regional Assessments***

- Strategic Assessment for the location of wind energy facilities within the Western Cape Province (for Western Cape Department of Environmental Affairs and Development Planning)
- Regional Assessments for wind energy developments within identified areas in the Overberg Area of the Western Cape Province (for BioTherm Energy)
- Regional Assessment for wind energy developments within an identified area in the Sutherland Area of the Northern and Western Cape Province (for Investec Bank Limited)
- Regional Assessment for wind energy developments within an identified area on the West Coast of the Western Cape Province (for Investec Bank Limited)
- Regional Assessment for wind energy developments within an identified area on the West Coast of the Western Cape Province (for Eskom Holdings Limited)

### ***Environmental Management Tools***

- Review the effectiveness and efficiency of the environmental impact management (EIA) system in South Africa on behalf of the Department of Environmental Affairs and Tourism
- Development of a comprehensive site-specific EMP for the construction and operation of the Eskom Braamhoek Integration Project, Free State and KwaZulu-Natal Provinces
- Compilation of Provincial Guidelines for off-road routes within the Western Cape Province
- Water use permit applications for water use at Tiffindell Ski Resort, Eastern Cape Province
- Water use permit applications for various properties within the Olifants West Game Reserve, Limpopo Province
- Environmental Risk Analysis for Salbro Property Holdings, Gauteng Province
- Project integration and compilation of a Strategy for Sustainable Development for Gauteng Province
- Advice regarding environmental compliance of existing and future development at Tiffindell Ski, Eastern Cape Province
- Advice regarding environmental compliance at Salberg factory, Gauteng Province

### ***Peer Review***

- Review of EIAs submitted in terms of the ECA for the Northern Cape Department of Tourism, Environment and Conservation, including:
  - \* EIA for a new wastewater treatment works in Warrenton
  - \* EIA for chicken layer houses in Kimberley
  - \* EIAs for the upgrading of petrol stations in Kimberley
  - \* EIA for a new up-market residential development in Kathu
  - \* EIA for residential development in Kimberley
- Review of EIA and EMP for the proposed Waterfall Wedge development, Gauteng Province

### ***Infrastructure Projects***

- Project manager for the EIA and EMP for the proposed bridge across the Ngotwane River located on the border of South Africa and Botswana

### ***Mining Sector Projects***

- Environmental Impact Assessment and Environmental Management Programme in terms of the MPRDA for the proposed Elitheni Coal Mine near Indwe, Eastern Cape Province
- Environmental Management Programmes for three borrow pits associated with the proposed Groot Letaba River Development Project, Limpopo Province

### ***Water resources projects***

- Project manager for the EIA and EMP for the proposed modification of the existing Hartebeestfontein Water Care Works, Gauteng Province (for ERWAT)
- Project manager for the EIA and EMP for the proposed expansion of the existing Welgedacht Water Care Works, Gauteng Province (for ERWAT)

*Projects undertaken on behalf of Bohlweki Environmental include:*

### ***Specialist projects***

- Development of an Environmental Policy for the Ekurhuleni Metropolitan Municipality
- Development of an Integrated Environmental Policy for the City of Tshwane Metropolitan Municipality Environmental Opportunities and Constraints Assessment for the Wonderboom Airport
- Review of the State of the Environment Report for the North West Province

### ***Transport sector projects***

- Environmental Impact Assessment and Environmental Management Plan for the proposed N2 Wild Coast Toll Road between East London (Eastern Cape) and Durban (KwaZulu-Natal)
- Environmental input to the Denneboom Local Integrated Transport Plan
- Environmental input to the Ekurhuleni transportation corridors study
- Environmental Impact Assessment for the proposed Platinum Highway from Warmbaths via Pretoria to Skilpadhek (on the South Africa-Botswana border), including obtaining all environmental permits required.
- Environmental Scoping Study and public participation process for the upgrading of Provincial Main Road 100 between the intersection with Main Road 521 and Ndwedwe
- Environmental Management Plan for repairs of portions of the N3 and N1, Gauteng
- Environmental Scoping Study and public participation process for the Kingsway Relief Road in Maseru, Lesotho

### ***Electricity Sector projects***

- Project manager for the undertaking of an EIA and compilation of an EMP for the proposed Open Cycle Gas Turbine (OCGT) Power Station and associated 400 kV Transmission lines and substation at Atlantis, Western Cape Province
- Environmental Scoping Study for a new coal-fired power station in the Lephalale area, Limpopo Province
- Project manager for the undertaking of Environmental Scoping Study and compilation of an Environmental Management Plan for various 132 kV Sub-Transmission lines and substations within the Mpumalanga Province
- Project manager for the undertaking of an EIA for the proposed 765 kV Transmission line between the existing Hydra Substation (near De Aar) and the proposed Gamma Substation (near Victoria West), Northern Cape Province
- Detailed Environmental Scoping Study and public participation for the proposed Capacity Increase Project at Arnot Power Station, Mpumalanga Province
- Project manager for the undertaking of an Environmental Scoping Study and EMP for the proposed 132 kV sub-Transmission line between the GaRankuwa and Dinaledi substations, North West Province

- EIA & public participation for the proposed new Ikaros Substation and associated 400 kV Transmission line infrastructure, North West Province
- Environmental Scoping Study public participation for the Establishment of Eskom Infrastructure for Power Supply to the C-Cut Development at Premier Mine, Cullinan, Gauteng Province
- EIA & public participation for the proposed 3<sup>rd</sup> 400 kV Transmission line between the Poseidon and Grassridge Substations in the Eastern Cape Province
- EIA & public participation for the proposed new 400 kV Transmission line between Matimba Substation (near Lephalale) and Witkop Substation (near Polokwane), Limpopo Province
- Environmental Impact Study and public participation for the proposed 2<sup>nd</sup> 400 kV Transmission line between the Grassridge Substation and the Poseidon Substation in the Eastern Cape.
- Public Participation Process for the proposed Return-to-Service of the Camden Power Station, Mpumalanga Province
- Detailed Environmental Scoping Study and public participation for the Breyten Strengthening Project: proposed new Breyten Substation and associated 88 kV Distribution line, Mpumalanga Province
- Environmental Pre-Scoping Study for the proposed Concentrating Solar Plant, in the Northern Cape Province
- Environmental Impact Assessment public participation for the proposed new nine 132 kV power lines between the Grassridge Substation and the Coega Industrial Development Zone, Eastern Cape Province

### ***Pipelines***

- Environmental Impact Assessment for the proposed Petronet New Multi-Products Pipeline (NMPP) between Durban and Gauteng Province
- Exemption application for the construction of a gas pipeline between Majuba Mine and Majuba Power Station, Mpumalanga Province.
- Exemption application for the construction of an emergency water supply pipeline from Mamelodi to Ekandustria via Cullinan, Gauteng Province.
- Environmental Scoping Study for the installation of a new water supply pipeline from Centurion to Diepsloot, Gauteng Province.

### ***EIAs for Technology projects***

- Environmental Impact Assessment for the proposed Alternative Fuels and Resources Project at Alpha's ULCO Plant near Kimberley in the Northern Cape Province
- Environmental Impact Assessment for the proposed Alternative Fuels and Resources Project at Dudfield Plant, North West Province
- Environmental Impact Assessment for the proposed Blending Platform to be established within the Gauteng Province
- Investigation of possible alternative Scrap tyre collection and disposal strategies in Gauteng, South Africa

### ***Mining sector projects***

- Environmental Management Programme Report (EMPR) for the proposed small-scale kaolin clay mine near Ndwedwe, KwaZulu-Natal Province
- Environmental Management Programme Report (EMPR) for prospecting activities within the Premier Mine Game Farm, Cullinan for De Beers Consolidated Mines Limited
- Environmental Management Plan for the Proposed C-Cut Development at Premier Mine, Cullinan
- Environmental Management Programme Report for the Proposed C-Cut Development at Premier



Mine, Cullinan

- Environmental Impact Assessment and public participation process for the Proposed C-Cut Development at Premier Mine, Cullinan

***Development projects***

- A detailed Environmental Scoping Study and public participation process for the Thaba ya Batswana Development on portions of the Farm Rietvlei 101 IR, Gauteng
- Environmental Scoping Report and public participation process for the development of a Community Safety Centre in Khutsong-South, Carletonville

***Water resources projects***

- A detailed Environmental Impact Assessment of new regional water care infrastructure in the DD5A sub-drainage district in Eastern Gauteng (adjacent to the Blesbokspruit Ramsar Site) for the East Rand Water Care Company (ERWAT)

## **CURRICULUM VITAE**

### **JAYSON ORTON**

Profession : Heritage consultant  
Specialisation : Archaeology & Heritage  
Years experience : 8

#### **SKILLS BASE AND CORE COMPETENCIES**

- Archaeological Impact Assessment
- Heritage Impact Assessment
- Archaeological mitigation and research

#### **TERTIARY EDUCATION**

- 1997 BA – UCT
- 1998 BA (Hons) – UCT
- 2004 MA (Archaeology) – UCT
- Currently registered for D.Phil (Archaeology) – Oxford University, UK.

#### **EMPLOYMENT HISTORY**

- 1995 – 1999 : Occasional laboratory and field work for UCT Dept Archaeology
- 1999 – 2004 : Part time field archaeologist for UCT Archaeology Contracts Office
- 2004 – present : Full-time archaeologist and heritage consultant, UCT Archaeology Contracts Office

#### **SELECTED RELEVANT PROJECT EXPERIENCE**

- Ibhubesi Gas Power station, transmission lines and roads Baseline assessment (2011)
- Vredendal, Die Bulte PV facility Baseline assessment (2011)
- Sutherland, Inca PV facility Heritage Impact Assessment (2011)
- Kenhardt, Olywenkolk PV facility (fieldwork only, 2011)
- Beaufort West PV facility Heritage Impact Assessment (2011)
- Vredenburg, Uiekraal WEF Heritage Impact Assessment (2011)
- Darling, Rheboksfontein WEF Heritage Impact Assessment (2010, 2011)
- Gouda WEF Scoping & Heritage Impact Assessment (2010)
- Exxaro WEF Scoping & Heritage Impact Assessment (2010)
- Kerriefontein and Darling WEF Heritage Impact Assessment (2010)
- De Hoek power line (Piketberg) Notification of Intent to Develop (2010)
- Portion of Montagu-Barrydale power line Archaeological Impact Assessment (2009)
- Robertson Uitspan substation Archaeological Impact Assessment (2009)
- Kappa substation Heritage Impact Assessment (2008)
- Omega Substation Scoping Heritage Impact Assessment (2004)
- West Coast 1 WEF (fieldwork only, 2010)
- Bedford WEF (fieldwork only, 2010)
- Eskom WEF, Namaqualand (fieldwork only, 2007)
- Atlantis Open Cycle Gas Turbines (fieldwork only, 2005)

# CURRICULUM VITAE

**Mr John Pether, M.Sc., Pr. Sci. Nat. (Earth Science)**  
**Geological and Palaeontological Consultant**

P. O. Box 48318, Kommetjie, 7976.

Tel./Fax: (021) 7833023. Cellphone: 083 744 6295. Email: jpether@iafrica.com. Faxmail: 0866 890 732

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**January 2011**

## **CURRENT STATUS**

Independent Consultant/Researcher. Consultant to EIA/HIA projects, in terms of the National Heritage Resources Act 25 (1999), contributing palaeontological impact assessments (PIAs) with mitigation recommendations and carrying out mitigation measures. Independent consultant to Afri-Can Marine Minerals Corp. as a member of the exploration team.

## **EXPERTISE**

- Shallow marine sedimentology.
- Coastal plain and shelf stratigraphy (interpretation of open-pit exposures and on/offshore cores).
- Marine macrofossil taxonomy (molluscs, barnacles, brachiopods).
- Marine macrofossil taphonomy.
- Sedimentological and palaeontological field techniques in open-cast mines (including finding and excavation of vertebrate fossils (bones).
- Analysis of the shelly macrofauna of modern samples e.g. for environmental surveys.

Is a recognized authority in the field of coastal-plain and continental-shelf palaeoenvironments and is consulted by exploration and mining companies, by the Council for Geoscience, the Geological Survey of Namibia and by colleagues/students in academia pursuing coastal-plain/shelf projects.

At present, an important involvement is in palaeontological impact assessments (PIAs) and mitigation projects in terms of the National Heritage Resources Act 25 (1999).

## **MEMBERSHIP OF PROFESSIONAL BODIES**

- South African Council of Natural Scientific Professions. Earth Science. Reg. No. 400094/95.
- Geological Society of South Africa.
- Palaeontological Society of Southern Africa.
- Southern African Society for Quaternary Research.
- Accredited member, Association of Professional Heritage Practitioners, Western Cape.

## **RECENT HERITAGE IMPACT ASSESSMENT INVOLVEMENTS**

2010. Palaeontological Impact Assessment (Desktop Study). Proposed Development, Erf 2833, Groot Brak Rivier, Mossel Bay Municipality, Eden District, Western Cape. With Fossil Find Procedures For the Klomp Group. Client : Sector Five Properties (Pty) Ltd. (Feb).

2010. Palaeontological Impact Assessment (Desktop Study). Proposed Development, Amanzi Moya Estate, Remainder Vleeschbaai 251, Vleeschbaai, Mossel Bay Municipality, Eden District, Western Cape. With Fossil Find Procedures. For Cape EAPrac (Cape Environmental Assessment Practitioners). Client: Amanzi Moya Developments (Pty) Ltd. (Mar).

2010. Palaeontological Impact Assessment (Desktop Study). West Africa Cable System (WACS) Project, Yzerfontein Landing Site, Swartland Municipality, Western Cape. With Fossil Find Procedures. For ERM Southern Africa (Pty) Ltd. Client: Telkom SA (Pty) Ltd. (May).

2010. Palaeontological Impact Assessment (Desktop Study). Proposed Developments On Farm 485, Plettenberg Bay, District Knysna, Western Cape. With Fossil Find Procedures. For Cape EAPrac (Cape Environmental Assessment Practitioners). Client: Natural Echo Investments 10 (Pty) Ltd. (July).
2010. Palaeontological Impact Assessment (Desktop Study). Proposed Wind Farm Maasrust, Vredendal District, Western Cape. For ERM Southern Africa (Pty) Ltd. Client: Mainstream Renewable Power Ltd. (Aug).
2010. Palaeontological Impact Assessment (Desktop Study). Proposed Wind Farm Pampoene Kraal (Dwarskersbos), Piketberg District, Western Cape. For ERM Southern Africa (Pty) Ltd. Client: Mainstream Renewable Power Ltd. (Aug).
2010. Palaeontological Impact Assessment. Arcelor-Mittal SA Proposed Saldanha Bay LPG Facility Site Selection. For ERM Southern Africa (Pty) Ltd. (Sept.)
2010. Palaeontological Impact Assessment (Desktop Study). Proposed Rhebokfontein Wind Energy Facility Near Darling, Malmesbury District, Western Cape. For Savannah Environmental (Pty) Ltd. Client: Moyeng Energy (Pty) Ltd. (Sept).
2010. Palaeontological Impact Assessment (Desktop Study). Proposed West Coast One Wind Energy Facility, Vredenburg District, Western Cape. For Savannah Environmental (Pty) Ltd. Client: Moyeng Energy (Pty) Ltd. (Sept).
2010. Palaeontological Impact Assessment (Desktop Study). Proposed Wind Farm Nooitgedacht, Vredenburg District, Western Cape. For ERM Southern Africa (Pty) Ltd. Client: Mainstream Renewable Power Ltd. (Sept).
2010. Brief Palaeontological Impact Assessment (Desktop Study). Proposed Upington Solar Thermal Plant. Portion 3 of the Farm McTaggarts Camp 453, Gordonia District, Northern Cape. For Savannah Environmental (Pty) Ltd. Client: !Khi CSP South Africa (Pty) Ltd. (Oct).
2010. Palaeontological Impact Assessment (Desktop Study). Applications for Kaolin Prospecting Rights on Portion "Remainder Of 1" And Portions 3, 5, 7 & 9 of Klein Kogel Fontein 148, Vanrhynsdorp District, WCDMA01, Western Cape. For Wethu Investment Group Ltd. (Nov).
2010. Brief Palaeontological Impact Assessment (Desktop Study). Proposed Pofadder Solar Thermal Plant. Portion 4 of the Farm Scuit-Klip 92, Kenhardt District, Northern Cape. For Savannah Environmental (Pty) Ltd. Client: Ka Xu CSP South Africa (Pty) Ltd. (Dec).

## RECENT ACADEMIC CONTRIBUTIONS

- Pether, J, Roberts, D.L. and Ward, J.D. 2000. Deposits of the West Coast (Chapter 3). In: Partridge, T.C. and Maud, R.R. eds. *The Cenozoic of Southern Africa. Oxford Monographs on Geology and Geophysics No. 40. Oxford University Press: 33-55.*
- Roberts, D.L., Botha, G.A., Maud, R.R. and Pether, J. 2006. Coastal Cenozoic Deposits (Chapter 30). In: Johnson, M. R., Anhaeusser, C. R. and Thomas, R. J. (eds.), *The Geology of South Africa. Geological Society of South Africa, Johannesburg/Council for Geoscience, Pretoria: 605-628.*

## SUMMARY HISTORY

John Pether was born in Cape Town in 1956 and matriculated at Westerford High School. Was keen on a marine-related path and joined the Division of Sea Fisheries, Walvis Bay, as a technical research assistant. Came under the thrall of the Namib Desert and went to UCT to do a B.Sc., leaning towards marine geology and sedimentology. For a spell worked for Trans-Hex in diamond exploration onshore and offshore along the West Coast and went on to study the Hondeklip diamond mine in detail when based at the South African Museum in the Department of Cenozoic Palaeontology (Pether, J. 1994. *The sedimentology, palaeontology and stratigraphy of coastal-plain deposits at Hondeklip Bay, Namaqualand, South Africa. Unpub. M.Sc. thesis, University of Cape Town, 313 pp.*) Later joined De Beers Marine and since 2004 has been an independent consultant, with continued involvement in offshore diamond exploration and coastal-plain geology and fossils.

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# CURRICULUM VITAE

## Dr David Jury McDonald Pr.Sci.Nat.

**Name of Firm:** Bergwind Botanical Surveys & Tours CC. (Independent consultant)

**Work and Home Address:** 14 A Thomson Road, Claremont, 7708

**Tel:** (021) 671-4056 **Mobile:** 082-8764051 **Fax:** 086-517-3806

**E-mail:** [dave@bergwind.co.za](mailto:dave@bergwind.co.za)

**Website:** [www.bergwind.co.za](http://www.bergwind.co.za)

**Profession:** Botanist / Vegetation Ecologist / Consultant / Tour Guide

**Date of Birth:** 7 August 1956

### Employment history:

- 19 years with National Botanical Institute (now SA National Biodiversity Institute) as researcher in vegetation ecology.
- Five years as Deputy Director / Director Botanical & Communication Programmes of the Botanical Society of South Africa
- Six years as private independent Specialist Botanist consultant (Bergwind Botanical Surveys & Tours CC)

**Nationality:** South African (ID No. 560807 5018 080)

**Languages:** English (home language) – speak, read and write  
Afrikaans – speak, read and write

### Membership in Professional Societies:

- South Africa Association of Botanists
- International Association for Impact Assessment (SA)
- South African Council for Natural Scientific Professions (**Ecological Science, Registration No. 400094/06**)
- Field Guides Association of Southern Africa

### Key Qualifications :

- Qualified with a M. Sc. (1983) in Botany and a PhD in Botany (Vegetation Ecology) (1995) at the University of Cape Town.
- Research in Cape fynbos ecosystems and more specifically mountain ecosystems.
- From 1995 to 2000 managed the Vegetation Map of South Africa Project (National Botanical Institute)
- Conducted botanical survey work for AfriDev Consultants for the Mohale and Katse Dam projects in Lesotho from 1995 to 2002. A large component of this work was the analysis of data collected by teams of botanists.

- **Director: Botanical & Communication Programmes** of the Botanical Society of South Africa (2000–2005), responsible for communications and publications; involved with conservation advocacy particularly with respect to impacts of development on centres of plant endemism.
- Further tasks involved the day-to-day management of a large non-profit environmental organisation.
- **Independent botanical consultant** (2005 – to present) over 300 projects have been completed related to environmental impact assessments in the Western, Southern and Northern Cape, Karoo and Lesotho. A list of reports (or selected reports for scrutiny) is available on request.

### Higher Education

Degrees obtained and major subjects passed:

B.Sc. (1977), University of Natal, Pietermaritzburg  
Botany III  
Entomology II (Third year course)

B.Sc. Hons. (1978) University of Natal, Pietermaritzburg  
Botany (Ecology /Physiology)

M.Sc - (Botany), University of Cape Town, 1983.  
Thesis title: 'The vegetation of Swartboschkloof, Jonkershoek, Cape Province'.

PhD (Botany), University of Cape Town, 1995.  
Thesis title: 'Phytogeography endemism and diversity of the fynbos of the southern Langeberg'.

Certificate of Tourism: Guiding (Culture: Local)  
Level : 4 Code: TGC7 (Registered Tour Guide: WC 2969).

### Employment Record :

January 2006 – present: Independent botanical consultant and tour guide in own company: **Bergwind Botanical Surveys & Tours CC**

August 2000 - 2005 : Deputy Director, later Director Botanical & Communication Programmes, Botanical Society of South Africa

January 1981 – July 2000 : Research Scientist (Vegetation Ecology) at National Botanical Institute

January 1979—Dec 1980 : National Military Service

Further information is available on my company website: [www.bergwind.co.za](http://www.bergwind.co.za)

**Relevant studies for wind energy facilities:**

McDonald, D.J. 2010. Botanical Impact Assessment, Konstabel Renewable Energy Farm, Western Cape. Unpublished report, Environmental Resources Management (SA).

McDonald, D.J. 2010. Botanical Impact Assessment, Beaufort West Renewable Energy Project, Western Cape. Unpublished report, Environmental Resources Management (SA).

McDonald, D.J. 2011a. Botanical Impact Assessment Perdekraal Renewable Energy Farm, Western Cape

McDonald, D.J. 2011b. Botanical Impact Assessment: Komsberg Renewable Energy Project, Western Cape and Northern Cape. Unpublished report, Environmental Resources Management (SA).

McDonald, D.J. 2011c Botanical Feasibility Assessment Saldanha–Vredenburg Wind Farms, Western Cape. Unpublished report, Aurecon South Africa (Pty) Ltd

McDonald, 2011d. Botanical Feasibility Assessment, Velddrif Wind Farms, Western Cape. Unpublished report, Aurecon South Africa (Pty) Ltd.

McDonald, 2011d. Botanical Assessment for proposed wind energy facility at Oliphant's River Farm (Rem. Farm 629), Koekenaap Western Cape. Unpublished report, Aurecon South Africa (Pty) Ltd.

<p align="center"><b>SHORT CURRICULUM VITAE:</b></p> <p align="center"><b>Dr David Hoare</b></p> <p align="center"><b>ID no. 661104 5024 088</b></p>	<p><b><i>Botanist / Ecologist</i></b></p> <p><b><i>David Hoare Consulting c.c.</i></b></p>
<p><b>Date of birth:</b> 04/11/1966</p>	<p><b>RESPONSIBILITY:</b> Ecological Specialist responsible for vegetation, flora and fauna inventories, vegetation, habitat and land-use mapping, threatened plant and animal species surveys, alien species surveys.</p>
<p><b>Academic qualifications:</b> B.Sc (Botany and Zoology) Rhodes University; B.Sc Honours (Botany) Rhodes University, M.Sc. (Botany) University of Pretoria PhD (Ecology) – Nelson Mandela Metropolitan University, Port Elizabeth</p>	
<p><b>Nationality:</b> South African</p>	<p><b>EXPERTISE:</b> Ecological researcher in projects involving the description of terrestrial and coastal ecosystems. Broad expertise in the ecology and conservation of grasslands, thicket, wetlands, fynbos and coastal ecosystems. Project expertise includes baseline biological surveys for the mining, forestry and utility industries, national vegetation mapping programmes for government and research organisations, natural resource management using satellite remote sensing and aerial photography, environmental management and project management (research projects).</p>
<p><b>Additional qualifications:</b> Soil Classification Competence Certificate; Environmental Law Course; Environmental Management Systems (ISO 14001) Course; ERDAS Imagine Software Course (Remote sensing image processing software)</p>	
<p><b>Professional Societies:</b> <u>Professional Natural Scientist:</u> South African Council for Natural Scientific Professions (2005) Reg. no. 400221/05 <u>Professional member:</u> South African Institute of Ecologists and Environmental Scientists (2001) <u>Member:</u> International Association of Vegetation Scientists (2009)</p>	
<p><b>Countries of work experience:</b> South Africa, Kenya, Tanzania, Zimbabwe, Mozambique, Swaziland, Zambia.</p>	
<p><b>RELEVANT EXPERIENCE:</b> Ecological consultant since 1995. Author of 13 scientific publications, 6 technical scientific reports, 15 scientific conference presentations and over 250 specialist consulting reports. Attended 15 national and international congresses &amp; 5 expert workshops, lectured vegetation science at 2 universities and referee for 2 international journals. Wide experience in ecological studies within grassland, thicket, savanna and fynbos, as well as riparian, coastal and wetland vegetation. Senior author on Thicket Biome chapter in recent publication on vegetation of South Africa (SANBI), as well as second author on Grassland Biome chapter and co-author on three other chapters. Also compiled map of the Eastern Cape vegetation for the same publication.</p>	



<b>Project</b>	<b>Year</b>	<b>Province</b>
Specialist ecological study on the potential impacts of the proposed Tsitsikamma Wind Energy Facility Project	2011	Eastern Cape
Specialist terrestrial fauna study on the potential impacts of the proposed Koingnaas Wind Energy Facility	2011	Northern Cape
Specialist terrestrial fauna study on the potential impacts of the proposed Kleinzee 300MW Wind Farm	2011	Northern Cape
Specialist ecological study on the potential impacts of the proposed Karoo Renewable Energy Facility Project, near Victoria West	2011	Northern Cape
Specialist ecological study on the potential impacts of the proposed Spitskop Wind Energy Facility near Riebeeck East	2010	Eastern Cape
Specialist ecological study on the potential impacts of the proposed Riverbank Wind Energy Facility Project	2010	Eastern Cape
Specialist ecological study on the potential impacts of the proposed Oyster Bay Wind Energy Facility Project	2010	Eastern Cape
Specialist fauna study on potential impacts of the proposed Klipheuwel / Dassiesfontein Wind Energy Facility Project, Caledon	2010	Western Cape
Specialist ecological study on the potential impacts of the proposed Happy Valley Wind Energy Facility Project	2010	Eastern Cape
Specialist fauna study on potential impacts of the proposed Exxaro West Coast Wind Energy Facility Project near Brand se Baai	2010	Western Cape
Specialist ecological study on the potential impacts of the proposed Deep River Wind Energy Facility Project	2010	Eastern Cape
Specialist ecological study on the potential impacts of the proposed AB Wind Energy Facility Project, Indwe	2010	Eastern Cape
Specialist ecological study on potential impacts of the proposed St Helena Wind Farm Project, Vredenburg	2010	Western Cape
Specialist fauna study on potential impacts of the proposed West Coast One Wind Energy Facility Project, Vredenburg	2010	Western Cape
Specialist ecological study on the potential impacts of the proposed Suurplaats Wind Energy Facility Project, Sutherland	2010	Western & Northern Cape
Specialist fauna study on potential impacts of the proposed Rheboksfontein Wind Energy Facility Project, Darling	2010	Western Cape
Specialist ecological study on the potential impacts of the proposed Dorper Wind Energy Facility Project, Indwe	2010	Eastern Cape
Specialist ecological study on the potential impacts of the proposed Amakhaya Emoyeni Wind Energy Facility Project, Cookhouse	2010	Eastern Cape
Specialist ecological study on the potential impacts of the proposed AB Wind Energy Facility Project, Indwe	2010	Eastern Cape
Environmental Impact Report: Ecological study of the proposed Cookhouse Wind Energy Facility	2009	Eastern Cape
Environmental Scoping Report: Ecological study of the proposed Flagging Trees Wind Energy Facility	2009	Eastern Cape
Environmental Impact Assessment for the Establishment of the Caledon Wind Farm, Western Cape Province: Environmental Scoping Report: Fauna Impact Assessment Study	2009	Western Cape

## **CURRICULUM VITAE**

### **MORNE DE JAGER**

Profession : Specialist Environmental Consultant  
Specialisation : Noise Monitoring, Modelling and Control  
Years experience : 12

#### **SKILLS BASE AND CORE COMPETENCIES**

- Water monitoring programme design
- Water Quality Analysis and Modelling
- Environmental Auditing,
- Noise Monitoring, Modelling and Control
- Biological Monitoring
- Environmental Impact Assessment and Management
- IT skills (software as well as hardware)
- Conflict resolution and stakeholder facilitation

#### **TERTIARY EDUCATION**

- B.Eng (Chem), University of Pretoria

#### **EMPLOYMENT HISTORY**

- 1998 – 2001: Department of Water Affairs and Forestry, Pollution Control Officer
- 2001 – 2002: EcoSat, Environmental Monitoring, Control and Management
- 2002 – present: Menco / M2 Environmental Connections cc

#### **SELECTED RELEVANT PROJECT EXPERIENCE**

- Noise impact assessments for a variety of wind energy facilities across South Africa including, albeit: Gouda Wind Energy Facility, Riverbank Wind Energy Facility, Suurplaat Wind Energy Facility, West Coast One Wind Energy Facility, Rheboksfontein Wind Energy Facility, Flagging Trees, AB's Wind Energy Facility, Dorper Wind Energy Facility, Happy Valley, Deep River Wind Energy Facility, Cookhouse Wind Energy Facility

# CURRICULUM VITAE LOURENS DU PLESSIS

## PERSONAL INFORMATION AND CONTACT DETAILS

Name: Lourens Martinus du Plessis  
Date of birth: 1969-11-13  
Marital status: Married  
Nationality: South African  
Profession (specialisation): Professional GISc Practitioner (Environmental GIS)  
Company: MetroGIS (Pty) Ltd  
Years with firm: 12 years  
Position: Director  
Experience: 21 years  
Postal address: PO Box 384, La Montagne, 0184  
Telephone/fax: 012 349 2884/5 (w) 082 922 9019 (cell) 012 349 2880 (fax)  
E-mail: lourens@metrogis.co.za

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## KEY QUALIFICATIONS AND EXPERIENCE

### Primary function

The application of Geographical Information Systems (GIS) in environmental planning and management, impact assessments and spatial modeling.

### Experience and expertise

- Data sourcing and acquisition
- Data capture
- Data evaluation
- Data conversion and transfer
- GIS database development, implementation and maintenance
- Spatial analysis/modelling (visibility, slope, aspect, shadow, surface, raster, proximity, etc.)
- Digital terrain/elevation modeling
- Terrain evaluation
- Image processing
- Impact assessment and impact management
- Environmental management
- Decision support systems interface development
- Project management
- Map production, display, queries and reporting
- Environmental sciences expertise
- Process development
- Visual impact assessment

### Technological (software) expertise

- Arc/Info and ArcGIS
- ArcView
- PlanetGIS
- Vistapro (virtual landscape rendering software)
- Various GIS support software packages and applications
- Range of Microsoft standard applications (including Microsoft Word/Excel/Access, etc.)

### Awards

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

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 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: QDC Performance Award  
Awarded for: ENPAT Development  
Awarded by: Q Data Consulting  
Date: 1998

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

### **Publications/maps featured in publications**

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

Name: ESRI Map Book (Volume 13)  
Authors: Various  
Publisher: Environmental Systems Research Institute (ESRI)  
Date: 1998

Name: Pilanesberg Official Map and Park Guide  
Authors: North-West Parks & Tourism Board and Jacana  
Publisher: Jacana Media (Pty) Ltd  
Date: 2001

Name: KwaZulu-Natal - A celebration of biodiversity  
Authors: Jacana  
Publisher: Jacana Media (Pty) Ltd  
Date: 2001

Name: Garden Route - Still Bay to Storms River (Discover the Magic)  
Authors: Jacana  
Publisher: Jacana Media (Pty) Ltd  
Date: 2003

Name: Lowveld and Kruger Guide  
Authors: High Branching Team  
Publisher: Jacana Media (Pty) Ltd  
Date: 2004

Name: Heights to Homes to Oceans (H<sub>2</sub>O) Water Wise information poster  
Authors: Rand Water  
Publisher: Rand Water  
Date: 2004

Name: Kruger National Park Map and Photographic Guide  
Authors: Andy Tinker Photography  
Publisher: ATP Publishing  
Date: 2007

Name: Gateway to Kruger Map and Guide  
Authors: Andy Tinker Photography  
Publisher: ATP Publishing  
Date: 2010

## **WORK EXPERIENCE/EMPLOYMENT DETAILS**

**GisLAB CC** (Geographic Information Systems Laboratory - University of Pretoria)

Period: 4/1990 - 9/1997  
Position: Member / Project Manager

**GISBS** (Geographic Information Systems Business Solutions - Q Data Consulting)

Period: 10/1997 - 10/1999  
Position: Project Manager

**MetroGIS (Pty) Ltd**

Period: 11/1999 - to date  
Position: Director

## **EDUCATION/QUALIFICATIONS**

Degree: BA (University of Pretoria) Geography and Anthropology (Majors)  
Other Subjects: Archaeology, Philosophy and Political Science  
Date Received: 1993

## **PROJECTS SUMMARY**

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

### **General 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 Saldannah steel plant

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

### **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/Swellendal 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

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

*Some recent or current projects include:*

- 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 3<sup>rd</sup> 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 intergration
- 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
- Oyster Bay wind energy facility
- Ilanga Lethemba (Paardevelei) PV solar energy facility
- Upington photovoltaic solar facility



- Ramphele (Ritchie) PV solar energy facility
- Ruukie (Mpumalanga) coal fired power station
- Saldanha Steel 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

**PROFESSIONAL AFFILIATIONS**

*Professional Geo-Information Sciences (GISc) Practitioner* registered with The South African Council for Professional and Technical Surveyors (PLATO). *Membership number: PGP0147*

**LANGUAGES**

	<b>Reading</b>	<b>Writing</b>	<b>Speaking</b>
Afrikaans	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

**CURRICULUM VITAE**  
**Amanda van der Westhuizen**  
**Landscape Architect (BL Arch)**

<b>Name</b>	Amanda van der Westhuizen
<b>Name of Firm</b>	V&L Landscape Architects
<b>Profession</b>	Landscape Architect
<b>Date of Birth</b>	25 July 1973
<b>Years with firm</b>	13
<b>Position in the Firm</b>	Project Landscape Architect and Environmental Practitioner
<b>Marital Status</b>	Married
<b>Nationality</b>	South African
<b>Specialisation</b>	Landscape planning Landscape design Recreation Planning Land use Planning Environmental Planning Environmental Assessment Training and Education

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**KEY QUALIFICATIONS**

Amanda van der Westhuizen has been a Landscape Architect and Environmental Practitioner at V&L Landscape Architects CC (previously Van Riet and Louw Landscape Architects) for the past 13 years. She has specialised in the field of landscape and environmental design, environmental assessment and environmental management.

Her technical skills include the following; MsWord (proficient), AutoCAD 2D (proficient), MsExcel (proficient), MS Outlook (proficient), MsPowerPoint (proficient), CorelDraw (proficient), Adobe Photoshop (capable), AutoCAD 3D (limited), Autodesk Inventor (limited), Autodesk Revit (limited).

Amanda has worked in multi-disciplinary teams in a wide range of design, tourism and environmental based projects in South Africa. She has operated in a management capacity in many of them, fulfilling the role of primary client liaison, project planner, landscape designer and team manager. Other skills include meeting facilitation, research, report writing, strategic planning and detail design.

## EDUCATION

- Grade 12: Willowridge High School, Pretoria, 1991
- BL Arch University of Pretoria, 1995

## OTHER QUALIFICATIONS

- Accredited ILS Life Coach:  
Academy of Metaphysics, Johannesburg 2006
- Prometric Certified Technical Trainer (CTT+):  
'Tremendis' Train the Trainer, Pretoria, 2008
- SAQA Accredited Assessor:  
Abasangule Training Solutions, Pretoria, 2008
- SAQA Accredited Assessment Tools Developer:  
Abasangule Training Solutions, Pretoria, 2008
- Accredited Trainer for the Natural Step approach to Environmental Sustainability:  
The Natural Step South Africa, Johannesburg 2009

## PROFESSIONAL MEMBERSHIP

- Professional Member of the South African Council for the Landscape Architectural Profession (SACLAP).

## EMPLOYMENT RECORD

- **V&L Landscape Architects, Pretoria**  
**2009 to present date:** Consulting Landscape Architect
- **CTU Training Solutions, Pretoria**  
**2008:** Head of Programme & Training facilitator: AutoCAD Office Practice
- **V&L Landscape Architects, Pretoria**  
**1996 to 2007:** Consulting Landscape Architect

## LANGUAGES

- English: written and spoken (excellent)
- Afrikaans: written and spoken (excellent)

## EXPERIENCE RECORD

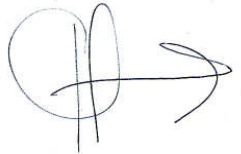
As landscape architect, Amanda has been involved in many of V&L's projects over the last 13 years. A comprehensive list of these projects is included in the Company profile. The following are some of her more notable projects undertaken in the past 5 years:

YEAR	POSITION	PROJECT NAME	COUNTRY	CLIENT	DESCRIPTION OF DUTIES
current	Project leader	Rietvlei Open Cast Mine VIA	RSA	Ezendalo Environmental	Visual Impact Assessment
current	Project leader	Ruukki Power Station VIA	RSA	Savannah Environmental	Visual Impact Assessment in association with MetroGIS
current	Project leader	Hendrina Ash Dam VIA	RSA	Lidwala	Visual Impact Assessment in association with MetroGIS
current	Project leader	Various VIA's for alternative energy facilities (solar and wind) – 3 projects	RSA	Aurecon	Visual Impact Assessment in association with MetroGIS
current	Project leader	Various VIA's for alternative energy facilities (solar and wind) – approx. 40 projects	RSA	Savannah Environmental	Visual Impact Assessment in association with MetroGIS
2009 - 2011	Project leader	Nelson Mandela Bay Wind Farm VIA and VIA addendum	RSA	SRK consulting	Visual Impact Assessment
2010	Landscape Architect	Rhodesfield Urban Design Framework (Landscape)	RSA	Ekhuruleni Local Municipality	Urban and Landscape Design
2010	Landscape Architect	Wonderwerk Cave Site Development	RSA	NCEDA	Landscape and Tourism Planning
2010	Landscape Architect	Seven Priority Reserves: Mpumalanga	RSA	Mpumalanga Tourism Parks Agency	Tourism Planning and Integrated Management Planning
2010	Project leader	Egoli Gas EIA	RSA	Egoli Gas	Environmental Impact Assessment
2009	Landscape Architect	Tourism Pre-feasibility study at Goegap, Doornkloof & Rolfontein Reserves	RSA	Northern Cape DTEC	Tourism Planning
2007	Landscape Architect	Union Buildings: Integrated Services Management Plan and Master plan	RSA	Department of Public Works	Landscape Planning and Integrated Management Planning
2007	Landscape Architect	Buffelspoort Dam Resource Management Plan	RSA	Department of Water Affairs and Forestry	Resource Management Planning
2006	Landscape Architect	Environmental Good Practice Guidelines for the Development of Transfrontier Conservation Areas	RSA	Peace Parks Foundation	Environmental Management Planning
2005	Project leader	EIA for the Upgrading of Various Tourism Infrastructure at the Vaalkop Dam	RSA	North West Parks and Tourism Board	Environmental Impact Assessment
2005	Project leader	EIA for Dullstroom Golf and Country Estate	RSA	Dullstroom Country Estates	Environmental Impact Assessment
2005	Project leader	EIA for the proposed Dullstroom Golf and Country Estate	RSA	Dullstroom Country Estates	Environmental Impact Assessment
2005	Landscape Architect	Tourism Development Opportunities for 6 Limpopo Provincial Reserves	RSA	Limpopo Tourism and Parks Board	Tourism Planning
2005	Landscape Architect	Liliesleaf Heritage Project	RSA	Liliesleaf Trust	Landscape Heritage Survey and Landscape



**CERTIFICATION**

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



11/04/2011

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**Amanda van der Westhuizen**

**Date**

**Full Name of Staff Member:** Amanda van der Westhuizen

**Full Name of Authorised Representative:** Johan le Roux Louw

**CURRICULUM VITAE**  
**Dr Robert E. Simmons**

*Profession* : **Honourary Research Associate, FitzPatrick Institute, UCT and Birds and Biodiversity Consultant**

*Specialisation* : **Raptors, shorebirds, endemic birds and giraffe and cats, climate change and evolution**

*Work experience* : Formerly employed in the Namibian Ministry of Environment and Tourism (MET) as the country's ornithologist, specializing in biodiversity issues. Schooled in England (Honours: Astrophysics), Canada (MSc: Biology) and South Africa (PhD: Zoology). I have worked in all parts of Namibia, first as Wetlands Biologist, then Ornithologist, specialising on raptorial birds, shorebirds, flamingos, terns, endemic species and inventories of Namibia's wetlands. Endemic species have been intensively studied in the escarpment and specialized collaborative studies have been undertaken with Cambridge, Oxford, Uppsala, Stanford, Edinburgh and Sheffield Universities. I have authored and co-authored 96 papers and 60 popular articles, contributed to 9 books or proceedings, and written an Oxford-published book on raptors in 2000. I have finished Namibia's first Red Data book on birds and that awaits publication. I have undertaken about 19 impact assessments over the last 8 years and I am part of the advisory board team for the EWT/Birdlife Birds and Wind Energy Specialist Group (BAWESG).

#### **SKILLS BASE AND CORE COMPETENCIES**

(i) **Ecological study of the Cunene River mouth** – As wetlands biologist, I headed a survey team comprising MET staff, that assessed the avifauna of the river's lagoon over 3 months during peak (March - May) and low flow (November) periods. Critical for the assessment of impacts of the controversial Epupa Dam.

(ii) **National surveys of Namibian wetland birds** - Coordinated avifaunal assessments of about 80 wetlands throughout Namibia twice a year, for 14 years as part of an Africa-wide programme. Special study of southern Africa's premier wetlands Sandwich Harbour and Walvis Bay. A 20-yr summary is in preparation.

(iii) **Endemic birds** – studies of Namibia's near-endemic birds with students from Edinburgh allowed us for the first time to use bird atlas data to estimate the population sizes of this important group of birds.

(iv) **Flamingo surveys** – coordinated southern African survey counts of flamingos and helped author an IUCN Lesser Flamingo Action Plan.

(v) **Black Harrier** ecology– breeding and satellite tagging studies in its 12<sup>th</sup> year with students

(vi) Main author and editor of the **Namibian Red data book** of birds, covering red-listed and endemic species.

**Summary:** I have lead national and international surveys of many species of birds in southern Africa over the last 20 years and have written extensively on them and their conservation status.

#### **TERTIARY EDUCATION**

##### **ACADEMIC TRAINING**

**B.Sc. Hons:** Astronomy and Physics, London University

**1975-1978**

**Honours thesis:** an investigation of sand dune movement and morphology around the north polar cap of Mars

from NASA photographs

**Master's degree:** Biology and Ornithology, Acadia University, Nova Scotia, Canada **1979-1983**

**Master's thesis:** 3-year study of the evolution of polygyny in Northern Harriers.

**Doctoral degree:** Zoology, Ornithology, University of the Witwatersrand **1984-1989**

**Post-doctoral research**

University of the Witwatersrand, Johannesburg, RSA **1988-1989**

Uppsala University, Sweden **1993-1994**

**EMPLOYMENT HISTORY**

Wetlands Biologist Ministry of Environment and Tourism 1990-1992

Ornithologist Ministry of Environment and Tourism 1992-2004

Self-employed consultant 2005- present

**SELECTED RELEVANT PROJECT EXPERIENCE**

**Impact Assessments undertaken**

- (i) birds impacted by a proposed Haib copper mine near the Orange River (1994)
- (ii) siting of the proposed Luderitz wind farm prior to formal impact assessments for NamPower (1997);
- (iii) coastal birds impacted by new “pocket-beach” diamond mines within the Diamond Area of the Sperrgebiet for Namdeb (Enviro-science (2002);
- (iv) impacts to birds along powerlines across the Namib Desert (Windhoek -Walvis Bay) for Nampower (2000).
- (v) assessment of water abstraction scheme from Karst System on wetlands and birds near Tsumeb (2003) with Jessica Hughes.
- (vi) impacts to birds from proposed powerlines between Windhoek-Auas, and Auas – Rehoboth (2005) for NamPower
- (vii) assisted Chris van Rooyen with studies of bird impacts on a proposed powerline south-east of the Waterberg Plateau Park (June 2006)
- (viii) impact of uranium mine at Valencia, Khan River, Namibia (Aug 2007, Feb 2008)
- (ix) Impact on birds of proposed shooting range at Faure Police site, Western Cape (2009)
- (x) Impact on birds of new airport in Caledon, Western Cape (2009)
- (xi) Wind farm (x5) bird assessments (with Andrew Jenkins) in Western Cape (2010-2011)
- (xii) Powerlines-bird interactions Redlinghuys, West Cape (ERM- 2009)
- (xiii) Coastal birds impacted by re-mining diamonds at E-Bay, Sperrgebiet, Namibia (Pisces- 2010)
- (xiv) Wind farm assessments at Gansbaai (2011)
- (xv) Wind farm assessments on the west coast at Kleinsee and Koingnaas

Recent papers and academic background can be found at:

<http://www.fitzpatrick.uct.ac.za/docs/whatsnew.html>

Red data book and conservation work at:

[www.nnf.org.na/RAPTORS/raptors\\_pges/conservation.htm](http://www.nnf.org.na/RAPTORS/raptors_pges/conservation.htm)

Papua New Guinea work at:

[http://www.natural-research.org/news/PNG\\_harrier.htm](http://www.natural-research.org/news/PNG_harrier.htm)



**CURRICULUM VITAE: DR. JOHAN H. VAN DER WAALS**  
(July 6<sup>th</sup>, 2011)

**1. Personal Particulars**

**Full names:** Johan Hilgard van der Waals                      **Title:** Dr.  
**Date of birth:** 1969 – 05 – 22                                      **Place of Birth:** Pretoria  
**Race:** White    **RSA Id no:** 690522 5224 082  
**Marital status:** Married  
**Language Proficiency:**  
**Afrikaans:** Excellent all round  
**English:** Excellent all round  
**Spanish:** Read and speak very good, writing fair  
**Portuguese:** Understand fair  
**French:** Understand fair (having completed two years of classes with the Alliance Francaise in Pretoria)  
**Computer Literacy/Proficiency:** Highly proficient in a range of software packages including MS Word, MS Excel, MS Outlook, MapSource, Fugawi, ACDSsee as well as varying experience in a range of GIS/GPS software applications.

**2. Contact Detail**

<b>Work physical address:</b> 624 Whippet Street Garsfontein 0060 Pretoria	<b>Work postal address:</b> PO Box 40568 Garsfontein 0060 South Africa
<b>Work telephone number:</b>	+27 (0)12 993 0969
<b>Work fax number:</b>	+27 (0)86 274 6653
<b>Cell phone number:</b>	+27 (0)82 570 1297
<b>Email address:</b>	<a href="mailto:joan@terrasoil.co.za">joan@terrasoil.co.za</a>

**3. Academic Qualifications**

- 3.1 BSc Soil Science and Botany Cum Laude, 1995, Potchefstroom University for CHE
- 3.2 BSc Honours Soil Science and Plant Nutrition, 1999, University of Pretoria
- 3.3 MSc Soil Science and Plant Nutrition, 2001, University of Pretoria
- 3.4 PhD Soil Science, 2006, University of Pretoria

## **4. Academic Output**

### **4.1 Peer Reviewed Journal Publications**

- 4.1.1 Van der Waals, J.H., & Claassens, A.S. 2002. Accurate lime recommendations under South African conditions. *Commun. Soil Sci. Plant Anal.*, 33(15-18), p 3059-3074.
- 4.1.2 Van der Waals, J.H., Snyman, H.G. & Claassens A.S. 2005. Increase in metal extractability after liming of sacrificial sewage sludge disposal soils. *Water SA* 31(2) p. 271-273.
- 4.1.3 Jackson, C.R., Lubbe, N.R., Robertson, M.P., Setsaas, T.H., Van der Waals, J. & Bennett, N.C. 2008. Soil properties and the distribution of the endangered Juliana's Golden Mole. *Journal of Zoology* **274**(2008) 13-17.

### **4.2 Peer Reviewed Book Chapters**

- 4.2.1 Van der Waals, J.H. & Laker, M.C. Micronutrient deficiencies in crops in Africa with emphasis on Southern Africa. *In* Alloway, B.J. (Ed.) *Micronutrient deficiencies in global crop production*. Springer Science, pp 201-224

### **4.3 Conference Proceedings Publications**

- 4.3.1 Van der Waals, J.H., Kaiser, C., & Stronkhorst, L.D. 2003. Challenges concerning fertilizer use and management practices in the banana industry in South Africa. *In* Schnug, E., Nagy, J., Németh, T., Kovács, Z., & Dövényi-Nagy, T. (Eds.), *Proceedings of the 14<sup>th</sup> International Symposium of Fertilizers (CIEC)*, June 22-25, 2003, Debrecen, Hungary, pp 386. ISBN 963 9274 44 5
- 4.3.2 Van der Waals, J.H. & Claassens, A.S. 2003. Long-term heavy metal pollution risk due to the use of slags as agricultural limes on the South African Highveld. *In* Spiers, G., Beckett, P., & Conroy, H. (Eds.), *Sudbury 2003 Mining and the Environment Conference Proceedings*, May 25-28, 2003, Sudbury, Ontario, Canada. ISBN 0-88667-051-9.
- 4.3.3 Van der Waals, J.H., Van der Merwe, C. & Erdmann, R. 2007. Detail assessment of metal distribution in polluted soil – a South African case study. *In* Fourie, A., Tibbett, M. & Wiertz, J. (Eds.), *Proceedings of the Second International Seminar on Mine Closure*, Santiago, Chile, 16-19 October, 2007. pp 815-820.

### **4.4 Technical Research Reports**

- 4.4.1 Snyman, H.G. & van der Waals, J.H. 2004. Laboratory and field scale evaluation of agricultural use of sewage sludge. WRC Report No. 1210/1/04. ISBN: 1-77005-230-5, Water Research Commission, Pretoria.

### **4.5 National Conference Presentations**

- 4.5.1 Van der Waals, J.H., & Claassens, A.S. 2001. Successful use of the RH-value in determining lime requirements. Joint Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Weed Science Society), Pretoria, 16-18 January 2001. (Oral Paper)
- 4.5.2 Van der Waals, J.H., & Claassens, A.S. 2001. The plant availability of selected heavy metals and phosphorus from applied slags. Joint Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Weed Science Society), Pretoria, 16-18 January 2001. (Oral Paper)
- 4.5.3 Viljoen, A., Van der Waals, J.H., Nel, B., and Wiese, L. D. 2002. The potential application of disease suppressive soils in the management of *Fusarium* wilt of banana. 13th Annual Soil-borne Disease Symposium, Stellenbosch. (Oral Paper)

- 4.5.4 Van der Waals, J.H., & Claassens, A.S. 2003. Long-term heavy metal pollution risk due to the use of slags as agricultural limes on the South African Highveld. Golden Jubilee Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences), Stellenbosch, 20-23 January 2003. (Oral Paper)
- 4.5.5 Stronkhorst, L.D., Viljoen, A., Claassens, A.S., Nel, B., & Van der Waals, J.H. 2003. The effect of N-fertilization and pH on the incidence of *Fusarium* Wilt (Panama disease) of banana in greenhouse trials. Golden Jubilee Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences), Stellenbosch, 20-23 January 2003. (Oral Paper)
- 4.5.6 Kaiser, C., & Van der Waals, J.H. 2003. Effects of different mineral element foliar sprays and soil application on Panama disease (*Fusarium oxysporum* f.sp *cubense*) of bananas. Golden Jubilee Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences), Stellenbosch, 20-23 January 2003. (Oral Paper)
- 4.5.7 Van der Waals, J.H., & Snyman, H.G. 2004. Selected chemical and physical soil properties of three sacrificial sewage sludge disposal sites. Water Institute of South Africa (WISA) Conference, Cape Town, 2-6 May 2004. (Oral Paper)
- 4.5.8 Van der Waals, J.H. & Claassens, A.S. 2005. Influence of increasing lime rates on ammonium EDTA (NH<sub>4</sub>-EDTA) extractable metals and organic matter from two acid long-term biosolids disposal soils. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, South African Weed Science Society, Southern African Society for Horticultural Sciences), Potchefstroom, 11-14 January 2005. (Oral Paper)
- 4.5.9 Van der Waals, J.H. & Claassens, A.S. 2006. Heavy Metal Uptake by Wheat from Two Sacrificial Biosolids Disposal Soils at Differential Liming Rates. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences), Durban, 24-26 January 2006. (Oral Paper)
- 4.5.10 J.H. van der Waals, L.D. Stronkhorst, A.S. Claassens, A. Viljoen. 2006. Chemical Analysis of Soils Suppressive and Conducive to *Fusarium* Wilt of Banana in South Africa. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences), Durban, 24-26 January 2006. (Oral Paper)
- 4.5.11 Van der Waals, J.H., Rossouw, P.S., Potgieter, J.J.C. & de Jager, P.C. 2007. Uranium mobility in soils – a South African case study. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences), Badplaas, 22-25 January 2007. (Oral Paper)
- 4.5.12 Van der Waals, J.H., de Jager, P.C., Rossouw, P.S. & Claassens, A.S. 2008. Mobility of Cr, Ni and V in long-term slag applied soils of Mpumalanga. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences, South African Weed Science Society), Stellenbosch, 19-22 January 2009. (Oral Paper)
- 4.5.13 Van der Waals, J.H., de Jager, P.C., Rossouw, P.S. & Claassens, A.S. 2009. Mobility of Cr, Ni and V in long-term slag applied soils of Mpumalanga. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences, South African Weed Science Society), Stellenbosch, 19-22 January 2009. (Oral Paper)

- 4.5.14 Van der Waals, J.H. 2009. Generalised soil characteristics of the wetland zones of the Halfway House granites, Gauteng Province. Wetlands Indaba, Langebaan, 27 – 30 October 2009. (Oral Paper)
- 4.5.15 Van der Waals, J.H., & Rossouw, P.S. 2010. Refining area specific wetland delineation criteria through the use of land type data. Wetlands Indaba, Kimberley, 26 – 29 October 2010. (Oral Paper)
- 4.5.16 Rossouw, P.S., Van der Waals, J.H., & De Jager, P.C. 2011. The extractability of chromium(III) and nickel as influenced by soil water potential levels. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Weed Science Society, Southern African Society for Horticultural Sciences), Durban, 17-20 January 2011. (Oral Paper)
- 4.5.17 Van der Waals, J.H. Rossouw, P.S. & Van Zyl, L.G. 2011. Long-term land use induced soil chemical variation on the Mpumalanga Highveld. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Weed Science Society, Southern African Society for Horticultural Sciences), Durban, 17-20 January 2011. (Oral Paper)
- 4.5.18 Van Zyl, L.G., & Van der Waals, J.H. 2011. Geomorphometry as indicator for slope position. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Weed Science Society, Southern African Society for Horticultural Sciences), Durban, 17-20 January 2011. (Oral Paper)
- 4.5.19 Pretorius, M.L., Van Huyssteen, C., Van der Waals, J.H., & Grundling, A.T. 2011. Soil colour as indicator of wetland boundaries on the Maputaland Coastal Plain. Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Weed Science Society, Southern African Society for Horticultural Sciences), Durban, 17-20 January 2011. (Oral Paper)

#### **4.6 International Conference Oral and Poster Presentations**

- 4.6.1 Van der Waals, J.H., & Claassens, A.S. 2001. Accurate lime recommendations under South African conditions. 5<sup>th</sup> International Symposium Plant-Soil Interactions at Low pH, Alpine Heath, 12-16 March 2001. (Poster Paper)
- 4.6.2 Van der Waals, J.H., Snyman, H.G., & Claassens, A.S. 2003. Extractable heavy metal fractions of three soils from sewage sludge disposal sites in South Africa. 8<sup>th</sup> International Symposium on Soil and Plant Analysis, Somerset West, 13-17 January 2003. (Poster Paper)
- 4.6.3 Van der Waals, J.H., Snyman, H.G., & Claassens, A.S. 2003. The effect of liming on pH and extractable heavy metals from soils at two sewage sludge disposal sites. 8<sup>th</sup> International Symposium on Soil and Plant Analysis, Somerset West, 13-17 January 2003. (Poster Paper)
- 4.6.4 Stronkhorst, L.D., Viljoen, A., Claassens, A.S., Nel, B., & Van der Waals, J.H. 2003. The effect of N-fertilization and pH on the incidence of *Fusarium* Wilt (Panama disease) of banana in greenhouse trials. 8<sup>th</sup> International Symposium on Soil and Plant Analysis, Somerset West, 13-17 January 2003. (Poster Paper)
- 4.6.5 Van der Waals, J.H. & Claassens, A.S. 2003. Long-term heavy metal pollution risk due to the use of slags as agricultural limes on the South African Highveld. Sudbury Mining and the Environment Conference, May 25-28, 2003, Sudbury, Canada. (Oral Paper)
- 4.6.6 Van der Waals, J.H., Kaiser, C., & Stronkhorst, L.D. 2003. Challenges concerning fertilizer use and management practices in the banana industry in South Africa. 14<sup>th</sup> International Symposium of Fertilizers (CIEC), June 22-25, 2003, Debrecen, Hungary. (Oral Paper)

- 4.6.7 Snyman, H.G., Van der Waals, J.H. & Van Niekerk, C. 2003. Aspects of the beneficial agricultural use of sewage sludge in South African soils. IWA Conference on Environmental Biotechnology: Advancement on Water and Wastewater Applications in the Tropics Kuala Lumpur, Malaysia, 9-10 December 2003. (Oral Paper)
- 4.6.8 J.H. van der Waals, A.S. Claassens & W.F.A. Kirsten. 2004. Reactivity and metal content of slags used on the Mpumalanga Highveld: How applicable are current guidelines? 15<sup>th</sup> International Scientific Center for Fertilizers Symposium, September 27-30, 2004, Pretoria, South Africa. (Oral Paper)
- 4.6.9 J.H. Van der Waals, P.C. de Jager & A.S. Claassens. 2004. Factors affecting the mobility of trace elements added to agricultural soils through the use of slags as liming materials. 15<sup>th</sup> International Scientific Center for Fertilizers Symposium, September 27-30, 2004, Pretoria, South Africa. (Oral Paper)
- 4.6.10 Van der Waals J.H. & Claassens, A.S. 2005. Influence of increasing lime rates on ammonium EDTA (NH<sub>4</sub>-EDTA) extractable metals and organic matter from two acid long-term biosolids disposal soils. 9<sup>th</sup> International Symposium on Soil and Plant Analysis, Cancun, Mexico, January 30<sup>th</sup> to February 4<sup>th</sup>, 2005. (Poster Paper)
- 4.6.11 Rossouw, P.S., Van der Waals, J.H., Claassens, A.S. & De Jager, P.C. 2007. Chromium and nickel transformation in South African Highveld catena soils. 10<sup>th</sup> International Symposium on Soil and Plant Analysis, Budapest, Hungary, 11-15 June 2007. (Poster Paper)
- 4.6.12 Van der Waals, J.H., Van der Merwe, C. & Erdmann, R. 2007. Detail assessment of metal distribution in polluted soil – a South African case study. Second International Seminar on Mine Closure, Santiago, Chile, 16-19 October, 2007. (Oral Paper)

#### **4.7 Awards**

- 4.7.1 Best student (PhD) presentation: “Van der Waals, J.H. & Claassens, A.S. 2003. Long-term heavy metal pollution risk due to the use of slags as agricultural limes on the South African Highveld.” At the Sudbury Mining and the Environment Conference, May 25-28, 2003, Sudbury, Canada.
- 4.7.2 Best Paper: “Van der Waals, J.H. & Claassens, A.S. 2005. Influence of increasing lime rates on ammonium EDTA (NH<sub>4</sub>-EDTA) extractable metals and organic matter from two acid long-term biosolids disposal soils.” Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, South African Weed Science Society, Southern African Society for Horticultural Sciences), Potchefstroom, 11-14 January 2005.
- 4.7.3 Best Paper: “Van der Waals, J.H., Rossouw, P.S., Potgieter, J.J.C. & de Jager, P.C. 2007. Uranium mobility in soils – a South African case study.” Combined Congress (Soil Science Society of South Africa, South African Society of Crop Production, Southern African Society for Horticultural Sciences), Badplaas, 22-25 January 2007.

#### **4.8 Completed Student Supervision: Masters students (University of Pretoria)**

- 4.8.1 Berhe, M.A. (Main Supervisor). 2003. The use of ethnopedology as a tool for participatory land use planning in the Eritrean Highlands.
- 4.8.2 Stronkhorst, L.D. (Main Supervisor). 2006. Selected soil properties affecting the incidence of Panama disease in banana.

- 4.8.3 McLea, J. (Co-supervisor). 2007. Assessment of the cultivation of *Jatropha curcas* L. for the production of bio diesel in the Mafikeng area of the North West Province of South Africa.
- 4.8.4 Stones, R. (Main Supervisor). 2007. Land suitability studies for the growing of deciduous berries in the Limpopo Province of South Africa
- 4.8.5 Rossouw, P.S. (Partial Supervisor). 2008. Environmental extractability of Cr(III) and Ni from soils of South Africa's Eastern Highveld.
- 4.8.6 Lubbe, N.R. (Co-supervisor). 2010. Characterization of the soils of Marion Island.

#### **4.9 Membership of National and International Bodies**

- 4.9.1 Soil Science Society of South Africa (SSSSA) – Member
- 4.9.2 Soil Science Society of America (SSSA) – Member
- 4.9.3 South African Soil Surveyors Organisation (SASSO) – Accredited Member
- 4.9.4 South African Council for Natural Scientific Professions – Reg. no. 400160/08

#### **5. Professional/Consulting Output**

- 5.1 Agriculture potential reports:** 250+ throughout South Africa
- 5.2 EMP/EIA soil surveys:** 40+ throughout South Africa
- 5.3 Specialist Soil Surveys:** 20+ throughout Southern Africa
- 5.4 Wetland delineation and general soil surveys (Land-use planning):** 50+ throughout Southern Africa
- 5.5 Fertilizer recommendations (various applications):** 40+
- 5.6 Short courses presented:** 8 (Soil Classification and Wetland Delineation)
- 5.7 Presentation at specialist workshops:** Advanced Environmental Crimes Workshop presented by the Department of Environmental Affairs (DEA) and Directorate Public Prosecutions (DPP)
- 5.8 Specialist Witness:**
  - 5.8.1 Specialised witness in the Regional Division of North Gauteng for the State in the matter between The State versus 1. Stefan Frylinck and 2. Mpofo Environmental Solutions CC (Case Number 14/1740/2010). Judgement delivered on the 6<sup>th</sup> of April 2011 in favour of the State.

#### **6. Previous Work Experience**

- 6.1 1988 – 1997:** South African National Defence Force. Last position held: Squadron Commander Terrain Evaluation (4 Survey and Mapping Regiment, South African Engineer Corps)
- 6.2 1997 – 1998:** Rehabilitation officer in the gold mining industry with ENVIROGREEN (now Fraser Alexander)
- 6.3 1999 – 2007:** University of Pretoria: Last position held: Senior Lecturer in Soil Science and Land-use Planning
  - 6.3.1 Courses Presented/Developed:

Course	Level (e.g. second year, Masters)	Self developed (Yes or No)
ARD 482 Physical- Biological Resources and Development	Fourth year	Yes (50%)
ARD 782 Physical- Biological Resources and Development	Honours	Yes (50%)
GDK 250 Introductory Soil Science Practical	Second year	No
GKD 350 Soil Classification	Third year	Yes
GKD 460 Environmental Management	Fourth year	Yes (50%)
GKD 461 Soil Mineralogy and Genesis	Fourth year	Yes (50%)
GKD 480 Resource Surveying	Fourth year	Yes
LBU 410 Land-use Planning	Fourth year	Yes
LBU 420 Project in Land-use Planning	Fourth year	Yes
GDK 780 Soil Classification	Honours	Yes
GDK 781 Land-use Planning	Honours	Yes (50%)
GDK 782 Resource Surveying	Honours	Yes (50%)
GDK 783 Project in Land-use Planning	Honours	Yes (50%)

### 6.3.2 Other Academic/Industry Collaboration

6.3.2.1 Chairman of the organizing committee of the 15<sup>th</sup> International Scientific Center for Fertilizers (CIEC) Symposium held in Pretoria from 27 to 30 September 2004. The symposium was held at the request of the President (Prof. Christian Hera – Romania) and Deputy President (Prof. Ewald Schnug – Germany) of the CIEC.

6.3.2.2 Collaboration with the personnel from the Department of Zoology on the soil characteristics that influence the distribution of the Juliana's Golden Mole in the Bronberg area.

6.3.2.3 Collaboration with the personnel from the Department of Geography on the soils of Marion Island.

6.3.2.4 Collaboration with the Forestry and Agriculture Biotechnology Institute (FABI) on Panama disease of banana. Dr. van der Waals' contribution concerns plant nutrition and soil fertility influences on the incidence of the disease.

6.3.2.5 Collaboration with the South African Iron and Steel Institute and Pistorius & Co. on the mobility of heavy metals derived from slag applied soils.

**6.4 2007 – present:** Managing Director of Terra Soil Science cc. Terra Soil Science was established in August 2007 and has grown to such a point that it has, apart from Johan van der Waals, four full-time employees (GIS and project management) as well as an association with two part time soil surveyors for a range of soil survey and GIS applications.

### **Resumé**

Johan van der Waals completed his undergraduate studies in Soil Science and Botany at the Potchefstroom University for CHE (cum laude) in 1995. He completed his honours degree in Soil Science and Plant Nutrition (University of Pretoria) in 1999 (part-time), Masters in Soil Science and Plant Nutrition (University of Pretoria) in 2001 and PhD in

Soil Science (University of Pretoria) in 2006. Both his Masters and PhD degrees focussed on heavy metal mobility in soils as a result of the use of metal containing waste products. He was a staff member in the department of Plant Production and Soil Science of the University of Pretoria from 1999 to 2007 and presented 13 courses of which many were self developed. His favourite and strongest course was Soil Classification in which the students were intensively exposed to the **South African Taxonomic System** as well as to the **World Reference Base for Soil Resources (WRB)** of the Food and Agriculture Organisation (FAO) of the United Nations (UN) and the United States Department of Agriculture's (USDA) **Soil Taxonomy**. During his tenure at the University of Pretoria he was actively involved in research on:

- heavy metal mobility in soils and the correlation of this mobility with easily classifiable soil properties,
- soil borne plant pathogens and the soil properties governing the incidence of the diseases (in collaboration with a number of other departments and institutes), and
- the influence of soil properties on the distribution of plants and animals (especially the Juliana's Golden Mole) in collaboration with a number of other departments and institutes.

In addition, Johan has been involved with the streamlining and optimization of fertilizer recommendations in the banana growing regions of SA with the aim of increasing profitability and yield as well as the decreasing of disease incidence. He has also been involved with the conducting of numerous ad-hoc pot and field trials on the yield of and nutrient and heavy metal uptake by maize, wheat, spinach, banana and other crops.

Since the establishment of Terra Soil Science CC, Johan has been involved in a range of soil consulting services. The bulk of the contribution to the industry entails soil surveys for EIAs as well as soil management plans and soil based wetland surveys and delineations. The recent focus on wetland conservation in SA led to a range of surveys to determine the status and extent wetlands that have had some form of human impact. The culmination has been the successful defence of the Wetland Delineation Guidelines and wetland description criteria in the recent court case on the destruction of Pan African Parliament Complex Site in Midrand, Gauteng.

Johan van der Waals has an active interest in the understanding of soils and their properties and their influence on a range of natural and anthropogenic processes and as such is actively involved in research. Key to this understanding is a proper grounding in the Soil Classification, Soil Chemistry, Plant Nutrition and Soil Biology disciplines and therefore these form the core of his academic interests.



**DR. J.H. VAN DER WAALS**



# Curriculum Vitae

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## Tony Barbour

### ENVIRONMENTAL CONSULTANT AND RESEARCHER

P O Box 1753, Sun Valley, 7975, South Africa  
(Tel) 27-21-789 1112 - (Fax) 27-21-789 1112 – (Cell) 082 600 8266  
(E-Mail) [tbarbour@telkomsa.net](mailto:tbarbour@telkomsa.net)

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My experience as an environmental consultant includes working for ten years as a consultant in the private sector in South Africa followed by four and a half years at the University of Cape Town's Environmental Evaluation Unit. During this time I gained experience and developed skills in a number of areas, including project management, preparation of proposals (technical and financial), report writing, reviewing and editing, environmental, strategic and social impact assessment, waste management, facilitation, teaching and training. My interests as an independent environmental consultant and researcher are linked to social impact assessment, strategic environmental assessment and planning, resource economics, training, capacity building and review work.

I have also served on the Board of Trustees for the Environmental Monitoring Group, an Environmental Non Government Organisation, for the last 12 years. I am also currently a director on the Richtersveld Environmental and Rehabilitation Company. This company was set up as part of the successful land claim by the Richtersveld community who live in the north-western part of South Africa.

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#### PERSONAL DETAILS

Tony Barbour, born on 8 June 1961  
Nationality: South African and Irish  
Married, with four children.

#### EDUCATION

BSc (Geology and Economics) Rhodes, 1984  
BEcon (Hons) Rhodes, 1985  
MSc (Environmental Science) University of Cape Town, 1992

#### ADDITIONAL QUALIFICATIONS

Advanced and basic mediation/facilitation skills training course. Centre for Conflict Resolution, University of Cape Town (1999).  
Multi-party negotiation and facilitation skills for natural resource management, MEPC/CIDA (1999).

#### ACADEMIC AWARDS

Schwartz Award, Top Student, Geology III, Rhodes University.  
Shell Medal of Excellence, Top student, Masters Course Work, MSc Environmental Science, UCT.

#### AREAS OF EXPERIENCE AND EXPERTISE

Project management, proposal writing, preparation, review and editing of reports and documents, environmental planning and management, Social Impact Assessment (SIA); Environmental Impact

Assessment (EIA); Strategic Environmental Assessment (SEA); waste management, environmental economics, facilitation, public participation, training and teaching. Countries with work experience include South Africa, Namibia, Botswana, Zambia, Lesotho, Swaziland, Ghana, Mozambique, Mauritius and Oman.

## **EMPLOYMENT RECORD**

- **Private Consultant: November 2004-current.**
- **University of Cape Town: August 1996-October 2004**  
Environmental Evaluation Unit (EEU), University of Cape Town. Senior Environmental Consultant and Researcher.
- **Private sector: 1991-August 2000**  
1991-1996: Ninham Shand Consulting (Cape Town). Senior Environmental Scientist.  
1996-August 2000: Steffen, Robertson and Kirsten (SRK Consulting) – Associate Director, Manager Environmental Section, SRK Consulting, Cape Town.
- **Lecturing: 1990-2005**  
University of Cape Town: Environmental Economics, Social Impact Assessment, Strategic Environmental Assessment and Environmental Impact Assessment.  
Cape Technikon: Environmental Economics and Waste Management.  
Peninsula Technikon: Environmental Economics and Waste Management.

## **RELEVANT AREAS OF EXPERIENCE AND EXPERTISE**

### **Social Impact Assessment**

As a private consultant I have largely focused on SIA's. Projects include:

- SIA for upgrade of PPC Riebeeck cement plant, Western Cape, South Africa (2011);
- SIA for Barka Landfill Site, Barka, Oman (2011);
- SIA for Solar Plant in Western Cape Province, South Africa (2011);
- SIA for Solar Plant in the Northern Cape Province (Upington), South Africa (2010);
- SIA for Solar Plant in the Northern Cape Province (Pofadder), South Africa (2010);
- SIA for ten Wind Energy Facilities in the Western Cape Province, South Africa (2010);
- SIA for eight Wind Energy Facilities in Eastern Cape Province, South Africa (2010- 2011);
- SIA for ESKOM Transmission lines from proposed Bantamsklip Nuclear Power Station, Western Cape (current);
- SIA for ESKOM Transmission lines from proposed Koeberg Nuclear Power Station, Western Cape (2010);
- SIA Bloubos Road, Somerset West, Western Cape (2010);
- SIA for Boschendal Farm Mixed Use Development, Stellenbosch, Western Cape (current);
- SIA Cookhouse Wind Energy Facility, Eastern Cape Province, South Africa (2009);
- SIA Helderberg Waste Transfer Station, Western Cape, (2009);
- SIA Driftsands Nature Reserve, Cape Town, Western Cape (2009);
- SIA Kidds Beach Golf Estate, East London (2009);
- SIA Swartland Regional Mall, Malmesbury, Western Cape (2009);
- SIA Klipfontein Mixed Use Residential Development, Malmesbury, Western Cape (2009);
- SIA Struisbaai Harbour Development, Struisbaai, Western Cape (2009);
- SIA De Plaat Mixed Use Residential Development, Velddrift, Western Cape (2009);
- SIA Woodlands Golf Estate, East London, Eastern Cape (2009);
- SIA for Hopefield Wind Farm, Western Cape (2009);
- SIA Duttons Cove Residential Development, Herolds Bay, Western Cape (2008);
- SIA Ashton Mixed Use Development, Ashton, Western Cape (2009);
- SIA for Elitheni Coal Mine, Eastern Cape (2008);
- SIA for Mandela Bay Mixed Development Precinct, Mandela Bay, Eastern Cape (2008);
- SIA for Annandale Mixed Development Precinct, Cape Town, Western Cape (2008);
- SIA for Garden Route Dam development, George, Western Cape (2008);

- SIA for Valencia Uranium Mine, Swakopmund, Namibia (2007);
- SIA and Resettlement Action Plan (RAP) for Southern Ashanti Gold Mining Project, Ghana (2007);
- SIA for expansion of PPC cement factory, Riebeck West, Western Cape (2007);
- SIA for Moropule Coal Power Station, Botswana (2007);
- SIA for proposed residential development near Stillbaai, Western Cape (2007);
- SIA for proposed residential development near Gansbaai, Western Cape (2007);
- SIA and Social and Labour Plan for Xolobeni Heavy Mineral Sands Project, Eastern Cape, South Africa (2007);
- SIA ESKOM Wind Energy Farm, Western Cape (2007);
- SIA and Social and Labour Plan for Tormin Heavy Mineral Sands Project, Western Cape, South Africa (2007);
- SIA Bulk Water Scheme, City of Cape Town, Western Cape (2007);
- SIA Montague Golf Estate, Western Cape (2006);
- SIA for Schalkenbosch Golf Estate, Tulbagh, Western Cape (2006);
- SIA for 2010 World Cup Stadium on Green Point Common, Cape Town (2006);
- SIA for raising of the Clanwilliam Dam, Western Cape (2005-06);
- SIA Kransvlei Golf Estate, Clanwilliam, Western Cape (2005);
- SIA for Mare Chicose Landfill Site, Mauritius (2005);
- Input into RAP for Mare Chicose Landfill Site, Mauritius (2005);
- SIA for road up-grade between Gansbaai and Bredadorp, Southern Cape (2005);
- SIA Zeekoevlei Golf Estate, Somerset West, Western Cape (2005)
- SIA Silwersand Golf and Resort Estate, Robertson, Western Cape (2003)
- SIA Darling Wind Farm, Western Cape (2003).
- SIA Assessment for Valkenberg East Site, Cape Town (2003).
- Maguga Dam, Swaziland. Development of socio-economic monitoring and evaluation programme, including indicators, for the resettlement programme. Swaziland (2001).
- SIA for Darling Wind Farm EIA, Darling, Western Cape (2001);
- N2 – Outeniqua Pass by-pass, George, SA. Socio-economic assessment for proposed by-pass options between the N2 and the Outeniqua Pass (1997).
- Social Assessment for Sparrebosch Golf Course, Knysna, SA (1996).
- Social Assessment for Riversonderend Road By-pass (1991).

### **Social Impact Assessment Guidelines**

- Development of Guidelines for Social Impact Assessment for Department of Environmental Affairs and Development Planning, Western Cape, (2007);
- Development of a Social Assessment and Development Framework for Department of Water Affairs and Forestry, South Africa, including development of guidelines for Social Impact Assessment, Conflict Management, Relocation and Resettlement and Monitoring and Evaluation (2005).

### **Strategic Environmental Assessment**

- Project Manager SEA for development of Biofuels in Northern Namibia (2010);
- Project Manager SEA City of Windhoek, Namibia (2010);
- Project manager for SEA of the Phase 2 of the National Roads Strategy for Mozambique (2007).
- Joint project manager for SEA of Cape Town 2004 Olympic Bid, Cape Town, SA (1999).
- Baralink SEA, Johannesburg, SA. Specialist input on socio-economic aspects for Baralink SEA (1998).
- Training courses and lectures on SEA (see below).

### **Environmental Assessment**

Experience includes developing proposals (technical and financial), liaising with clients, authorities and the public, developing terms of reference for specialist sub-consultants, project management and reviewing reports. Projects include:

- Barka Landfill Site, Barka, Oman (2011);
- Darling Wind Farm, Western Cape, South Africa. Environmental assessment of proposed Wind Farm near the town of Darling (2002).
- Walvis Bay Naval Facility, Walvis Bay, Namibia. Environmental assessment of the proposed naval

- facilities in Walvis Bay (2001).
- Portnet Saldanha, Western Cape, SA. EIA for the expansion of a bulk iron ore export facility at the Port of Saldanha (2000).
- Coastal Park Waste General Waste Site, Cape Town, SA. EIA, including public participation for a large, general waste site (1998).
- Sanderlings Development Plettenberg Bay, SA. EA, including public participation, for proposed residential development adjacent to the coast (1999).
- Stellenbosch Mountain Golf Course Development, Stellenbosch, SA. EIA, including public participation, for an 18 hole golf course, hotel and residential development (1998).
- Sparrebosch EIA, Knysna, South Africa (SA). EIA, including public participation, for an 18 hole golf course, hotel and residential development (1996).
- Stones Hill by-pass, Grahamstown, SA. EIA, including public participation, of a proposed by-pass near Stones-Hill, Grahamstown (1992).
- Riversonderend N2 by-pass, Riversonderend, SA. EIA, including public participation, of a proposed by pass of the N2 around the town of Riversonderend (1991).

### **Sustainable Development and Research**

While most of the work that I have been involved in includes elements that relate to the concept of Sustainable Development, the projects listed below have had sustainable development as a specific focus.

- Environmental and social specialist for the development of Mozambique Biofuels Strategy (2007).
- Development of strategy for the development of the Environmental Goods and Service Industry in the Western Cape for the Department of Environmental Affairs and Development Planning in the Western Cape (2006).
- Review of the Environmental Goods and Service Industry in South African and development of a strategy for the Department of Trade and Industry, South Africa (2006).
- Chapter on the South African Environmental Goods and Services Industry for study commissioned by the Department of Environmental Affairs and Tourism (2006).
- Integrating Sustainable Development into the Integrated Development Planning Process in South Africa. Review of 4 case studies in SA for the World Summit on Sustainable Development, Johannesburg (2002).
- Development of Integrated Sustainable Transportation Assessment Framework for Transportation Planning in South Africa. Project Manager for joint project between EEU and Urban Transportation Research Group at UCT (2003).
- Project Manager for South African Cleaner Development Mechanism (CDM) initiative being undertaken by South South North Trust. Project involves the recovery of methane gas from the Bellville South Landfill Site in Cape Town (2004)
- Development of Toolkit for incorporating Sustainable Development in to the Integrated Development Planning Process in South Africa (2004).
- Integrating Sustainable Development into the Eastern Cape Province Provincial Growth and Development Plan, 2004-2020 (2003-2004).
- Department of Housing, South Africa. Assessment of options for the development of energy and water efficient low cost housing in South Africa and an assessment of potential financing mechanisms, South Africa (2000).

### **Review**

- Review of SIA for Nuclear 1 (3 conventional nuclear power plants) located along the western and south eastern coasts of South Africa (2009);
- Review of SIA for proposed PMBR Plant at Koeberg, Western Cape (2008);
- Review of specialist reports for the Groot Letaba Dam EIA, Mpumalanga, South Africa (2008).
- External Review Consultant for SIA component of N2 Wild Coast Toll Road EIA (2008).
- Internal Review Consultant for Golder Associates on Namakwa Sands Heavy Mineral Mining EIA, Western Cape (2006);
- Review of EIA for Palm Valley Golf Course Estate, Durbanville, Western Cape (2005);
- Review of EIA for Zeekoevlei Golf Course Estate, Somerset West, Western Cape (2005);
- Review of EIA for Oostenberg Waste Transfer Station, Brackenfell, Western Cape (2004);
- Review of Socio-Economic Study undertaken for the R300 Toll Road EIA, Cape Town, Western

- Cape (2004);
- Review of EIA for proposed establishment of Toll booths on Chapman's Peak Drive, Cape Town, Western Cape (2003);
- Review of EIA for Cell Phone Mast, Cedeberg, Western Cape (2003);
- Review of EIA for Hotel and Conference Center, Durbanville, Western Cape (2003);
- Review of EIA for N7 Road Up-grade, Clanwilliam, Western Cape (2002);
- Review of EIA for Up-grade of Sewage Works, Western Cape (2002).

### **Environmental Planning**

- Development of a Rehabilitation and Land Use Plan for the Alexkor Mining Area in the Richtersveld in the Northern Cape Province (2003-2007). This formed part of a land claim for the Richtersveld Community and included acting as an expert witness for the community in the associated court case.
- Southern Cape Spatial Development Framework (SCSDF), Southern Cape Region, SA. Environmental opportunities and constraints assessment for SCSDF study (2000).
- Stellenbosch Rivers Management Plan, Stellenbosch, SA. Integrated management plan for the urban river systems in Stellenbosch (1998).
- Wetton-Lansdowne corridor project, Cape Town, SA. Habitat conservation and biodiversity study to inform planning proposals for the Wetton-Lansdowne corridor (1998).
- Tygerberg Spatial Development Framework, City of Tygerberg, Cape Town, SA. Environmental baseline study for the spatial development framework study for the City of Tygerberg (1999).
- Protea Valley development options, City of Tygerberg, Cape Town, SA. Assessment and identification of suitable land use development options for Protea Valley (2000).

### **Waste Management**

- Al Wusta Regional Waste Site Investigation, Oman (2011).
- Al Batinah Regional Waste Site Investigation, Oman (2011);
- Barka Landfill Site EIA, Muscat, Oman (2010);
- Mare Chicose Landfill, Mauritius. SIA and Compensation and Relocation Plan for proposed expansion of the current landfill site (2005).
- Robertson Waste Site, Robertson, SA. EA, including public participation, for the identification of a new waste site (2000).
- Coastal Park General Waste Site, Cape Town, SA. EIA for proposed expansion of a large, general waste site (1998).
- Windhoek general and hazardous waste site, Windhoek, Namibia. Investigation to identify new general and hazardous waste disposal site for Windhoek (1997).
- Walvis Bay general and hazardous waste site, Walvis Bay, Namibia. Investigation to identify new general and hazardous waste disposal site for Walvis Bay (1998).
- Port Elizabeth Waste Site, Port Elizabeth, SA. Environmental Assessment for permit application (1998).
- Brackenfell general waste site, Cape Town, SA. Permit application report and environmental assessment for Brackenfell waste site (1995).
- Ceres general waste site, Ceres, SA. Permit application report and environmental assessment for Ceres waste site (1995)
- Caledon general waste site, Caledon, SA. Permit application report and environmental assessment for Caledon waste site (1996).
- Wellington general waste site, Wellington, SA. Permit application report and environmental assessment for Wellington waste site (1996).
- Greyton general waste site, Greyton, SA. Permit application report and environmental assessment for Greyton waste site (1999);

### **Environmental Training Courses**

Experience includes design of training courses, development of training manuals and running courses for both the private and public sector. Courses include:

- Resource Economics for Coastal Managers and Government Officials, Namibian Government (2009).
- EIA and Environmental Management course for Swaziland Local Authorities, 2004.

- Integrated Coastal Management course for Department of Marine and Coastal Management, 2004.
- 5 regional Social Assessment Training Workshops for officials from the South African Department of Water Affairs and Forestry, 2004.
- EIA training course for officials of the South African National Parks, Kruger National Park, 2003.
- Environmental Management course for Shell South Africa, 2003.
- 10 Local Agenda (LA) 21 training courses for provincial and local government departments in South Africa during period 2000-2002.
- Resource Economics Workshop for South African Department of Water Affairs and Forestry, 2002.
- Conflict Resolution Workshop for subsistence fishermen, Kwa-Zulu Natal, 2002.
- Integrating the principles of LA 21 into Integrated Development Planning. Course presented at World Summit on Sustainable Development, Johannesburg, 2002.
- Environmental facilitation, mediation and conflict management. Training course for Independent Mediation Services in South Africa (IMSSA) facilitators, 1998, 1999 and 2000.
- Series of 4 Strategic Environmental Assessment training courses for officials of the Government of Botswana, 2000 & 2001.
- EIA training course for officials of the Government of Lesotho, 2000 and 2001.
- EIA training courses for local government officials in Cape Town, 2000.

### **Lecturing and Teaching**

I have been involved in the lecturing and teaching at an under and post-graduate level since 1990. The areas of interest include Environmental Economics, General Environmental Issues, EIA, SEA, SIA and Waste Management.

- Lecturer in Environmental Economics for the MPhil course in Environmental Management at University of Cape Town from 1990 –2006.
- Guest lecturer in SIA, EIA and SEA for MPhil course in Environmental Management at UCT, 2000-2004.
- Coordinator and lecturer in Environmental Economics at Cape Technikon, 1999.
- Coordinator and lecturer of waste management course, Peninsula Technikon in 1998.
- Guest lecturer at Peninsula Technikon for waste management, 1994 – 1998.
- Moderator for Peninsula Technikon waste management course, 1994-2002.
- Environmental Management for senior managers, module on a business management course for AngloVaal Management run by Prof John Simpson of UCT, 2000 and 2001.
- Guest lecturer on SIA and EIA for Geography and Environmental Science Honours, UCT. 2000-2004.
- Presenter and coordinator on annual Integrated Environmental Management Short Course run by the Environmental Evaluation Unit at UCT (2000-2006).
- Presenter on Integrated Coastal Management course run by Environmental Evaluation Unit at UCT 2005-2006.

### **Public Participation**

Experience includes designing public participation processes and facilitating public meetings and workshops. Projects include:

- Green Point Common, Cape Town. Public participation and facilitation processes for development of new market area for informal traders (2005);
- Chapman's Peak Drive. Managed and facilitated the public participation processes for looking at the technical and funding options for re-opening Chapman's Peak Drive on the Cape Peninsula as a toll road (2001).
- Visserhok Hazardous waste disposal sites, Cape Town City Council and Wastetech, Cape Town, SA. Managed and facilitated the public participation processes for the permit application for two hazardous waste sites located at Visserhok (1994).
- Grand West Casino, Cape Town. Public participation processes for proposed establishment of the Grand West Casino at the Cape Show Grounds, Cape Town (1997).
- Coastal Park waste site, Cape Town, SA. Managed and facilitated public participation processes for the permit application for the Coastal Park general waste site (1998).
- Managed and facilitated public participation processes associated with EIA's listed above.

### **Environmental Management Plans and Rehabilitation Reports**

- Development of rehabilitation programme and cost estimate for damage caused by 80 years of alluvial diamond mining between Alexander Bay and Port Nolloth, West Coast, South Africa (current). This project is linked to the Richtersveld Land Claim and involved acting as an expert witness in the associated court case.
- Corridor Sands Heavy Mineral Project, Mozambique. Development of an Environmental Management Plan (EMP) for the construction phase of the project (2001).
- Walvis Bay Naval facilities, Walvis Bay, Namibia. EMP for the construction phase of the project (2001).
- APC cement factory, Otjiwarongo, Namibia. Operational management plan for up-grade to meet the legislative requirements (2000).
- Sparrebosch golf course, hotel and residential development, Knysna, SA. Environmental Management Plan (EMP) for the construction phase (1997).
- M3 highway up-grade, Johannesburg, SA. EMP for the design and construction phase of the M3 (1995).
- Trunk Road 46, Grahamstown-Port Alfred, Eastern Cape, SA. EMP for the construction phase (1994).
- Trunk Road 46, Grahamstown to Port Alfred, Eastern Cape, SA. Rehabilitation proposals for borrow pits, quarries, cuts, fills and road surfaces (1993).
- Trunk Road 19, Maclear to Halcyon Drift, Eastern Cape, SA. Rehabilitation proposals for borrow pits and quarries (1992).
- Namakwa Sands, Heavy Mineral Mining Operation, West Coast SA. Conceptual Rehabilitation Plan (1991).

#### **Environmental Management Systems and Audits**

- APC Cement Factory, Otjiwarongo, Namibia. Operational audit of APC cement factory to assess compliance with Namibian legislation (2000).
- Vodacom, SA. Conceptual Development of an Environmental Policy and outline for an Environmental Management System for Vodacom, SA (1998).
- Marine Oil, SA, initial site audit (1999).
- Rose Foundation, SA. Audit of 15 waste oil-recycling facilities in SA (1997).
- Zambian Copper Belt, Zambia. Pre-acquisition audit of 20 electrical transformer stations (1997).

#### **Supervision of Students**

- 1994-2006: Supervision of the thesis component of MPhil in Environmental Management for a number of students. Usually requested to act as supervisor for at least one or two students per year.
- Internal and external examiner for a number of theses submitted in fulfillment of the M.Phil Environmental Management at UCT.

### **PUBLICATIONS AND PAPERS**

#### **Environmental Publications and Guidelines**

- Principal Author of Health, Safety and Environmental Guidelines for Bitumen and Coal Tar Products, prepared for the SA Bitumen Association (Sabita), in 1994 and revised in 1998.
- Principal Author of Guidelines for Waste Management in South Africa, a handbook for local authorities, produced by Ninham Shand in 1993.
- Co-author of document outlining an integrated Waste Management Strategy for the Western Cape, SA, produced in 1995;
- Principal Author of Guidelines for Waste Management in South Africa, a handbook for local authorities, produced by Ninham Shand in 1993.

#### **Papers and Articles**

The majority of the articles aimed at the layperson as opposed to journal articles.

1. SOWMAN, M R, GLAZEWSKI, J I, FUGGLE, R F, BARBOUR, A (1990) " Planning and legal responses to sea-level rise in South Africa", South African Journal of Science, v 86, 1990.
2. BARBOUR, T (1992) 'Addressing the social impacts of waste disposal by incorporating permit applications into the latest Integrated Environmental Management (IEM) procedures', Paper

- presented at Wastecon '92, 3 – 5 November 1992.
3. BARBOUR, T (1992) "Internalising externalities: An attempt to address social costs", paper presented at a workshop on the Economy and Environment, 25 November 1992.
  4. BARBOUR, T (1993) "The importance of taking waste disposal seriously", IMIESA, v 18 no 7 July 1993.
  5. BARBOUR, T (1993) "Community based waste collection", Earthyear 5<sup>th</sup> edition, winter 1993.
  6. BARBOUR, T (1993) "Guidelines for waste management in South Africa", Ninham Shand, 1993.
  7. BARBOUR, T (1994) "Quarry Rehabilitation Reports: Are they effective working documents or merely legal requirements?", EPM, v 5, no 2, February 1994.
  8. BARBOUR, T (1994) "Environmental factors relating to site selection for dams", Paper presented at SAICE one-day seminar on earth dam design, 3 June 1994.
  9. BARBOUR, T (1994) "Environmental Economics", Earthyear 7<sup>th</sup> edition, Summer 1994.
  10. BARBOUR, T (1996) "Lessons learnt from Vissershok for public participation and landuse planning", Paper presented at Wastecon 96, Durban, South Africa.
  11. BARBOUR, T and COLEMAN, A (1996) "Towards an integrated waste management strategy for the Western Cape", Paper presented at Wastecon 96, Durban, South Africa.
  12. BARBOUR, T (1998) Strategic Environmental Assessment of the Cape Town 2004 Olympic Bid", paper presented at IAIA 98, Christchurch, New Zealand.
  13. BARBOUR, T (2000) Robertson Waste Site: A Case Study, paper presented at Wastecon 2000, Somerset West, SA.
  14. BARBOUR, T (2000) National Environmental Management Act: Implications for Waste Management and the Minimum Requirements, paper presented at Wastecon 2000, Somerset West, SA.
  15. BARBOUR, T (2001). The role of economic incentives in promoting and/or improving environmental rights. Paper presented a Conference on Environmental Rights, Cape Town, 30 July 2001.
  16. BARBOUR, T (2002). The role of environmental assessments in land-use planning. Paper presented at Southern African Town Planning Conference, Somerset West, 18-19 March 2002.
  17. BARBOUR, T (2002). Incorporating principles of environmental sustainability into policy making. Conference on Environmental Practices for the 21<sup>st</sup> Century, Somerset West, 24-25 May, 2002.
  18. BARBOUR, T and Brownlie, S (2002). Have mandatory environmental impact assessments improved decision-making in South Africa, and are they making a significant contribution to sustainable development? International Association for Impact Assessment (SA), National Conference, 7-9 October 2002.
  19. Barbour, T (2003). Developing and evaluating effective strategies for managing hazardous materials and wastes. Paper prepared for Chemical and Toxic Waste Management Conference Park Hyatt, Rosebank, Johannesburg, February 2003.
  20. Barbour T (2004). Incorporating Sustainable Development considerations in to the IDP process. Paper prepared for conference on Environmental Management for Local Government, Johannesburg, June 2004.
  21. THESIS TOPIC "Quarry Rehabilitation: The need to adopt a pre-planning approach towards rehabilitation (MSc Environmental Science)." An important component of the study was the development of a Rehabilitation Programme and Rehabilitation checklist to assist those involved in carrying out rehabilitation work.