

CURRICULUM VITAE

Environmental

Company	Arcus GIBB
Name	Jaana-Maria BALL
Nationality	South African
Date of birth	22.12.1969
Profession	Environmental Scientist and Botanist/MBA
Position	Director
Specialisation	Project management, integrated environmental management including environmental impact assessments, environmental management programmes, botanical investigations, revegetation and rehabilitation programmes, integrated development planning; public facilitation, environmental auditing; and public private partnership advisory services
Start date with Arcus GIBB	1997 – Permanent full-time staff member

Key experience

An environmental scientist with a Masters Degree in Business Administration and with 16 years of experience, Jaana-Maria Ball specialises in various environmental disciplines:

Her key experience includes:

- **Business administration and development** providing leadership and management of two business units (Environmental and Support Services) including strategic planning, financial performance, workload and resource planning, human resource management, quality management, review of projects and proposals, quality management and administration. Environmental Services comprises integrated environmental planning, hydrological and waste management services. Support services comprises human resources, information technology and marketing services
- **Project management** of various medium and large-scale infrastructural and environmental projects
- **Environmental advisory services and strategic environmental management** including Strategic Environmental Assessments and environmental scans
- **Environmental impact assessment (EIA)** of small, medium and large-scale infrastructure projects, including public participation processes
- **Environmental management programmes (EMP)** for the construction and operational phases of infrastructure developments
- **Environmental sensitivity and land-use suitability analyses** for various projects and biomes
- **Environmental management programme reports (EMPR) and mining permit applications** for borrow areas and mines in terms of the Mineral and Petroleum Resources Development Act of 2002
- **Vegetation studies** for ecologically sensitive areas within the Fynbos, Afromontane and Succulent Karoo Biomes
- **Rehabilitation and landscape plans** for various developments, particularly mining operations
- **Environmental auditing** including due-diligence, ISO 14001, legal compliance and waste audits
- **Integrated development planning (IDP)** including the management, facilitation and development of integrated development plans

- **Integrated Water Use Licensing Applications and General Authorisations for Water Use** to meet the requirements of the Department of Water Affairs and Forestry, and
 - **Public Private Partnership Advisory Services** in the procurement and delivery of infrastructure
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Qualifications and Registrations/Certifications

Bachelor of Science in Botany and Zoology : University of Cape Town, 1990
Bachelor of Science (Honours) in Botany : University of Cape Town, 1991
Master of Science in Botany (Ecology) : University of Cape Town, 1995
Integrated Environmental Management - Theory and Practice : University of Cape Town, 1996
Business Management Diploma : Damelin College, 1996
Project Management (post-graduate course) : University of Cape Town, 2001
Master of Business Administration (MBA) : University of Cape Town, 2003 (Full-time) and ESADE (Barcelona, Spain) (Full-time)
Professional Member of the South African Council for Natural Scientists, 1998 to date
PriSciNat No : 400049/98
Professional Member, South African Institute of Ecologists and Environmental Scientists, 1998 to date
Professional Member, South African Association of Botanists, 2000 to date
Certified Environmental Impact Assessment Practitioner, Interim Certification Board, 2006 (application in process)
Associate Environmental Auditor with Institute of Environmental Management and Assessment, 2006 (registration in process)

Career summary

- Oct 2009
Present **Arcus GIBB** – Discipline Leader and Director: Environmental Services; Organisational Manager Environmental Services North; Environmental Technical Director; Director: Systems Efficiencies; North Regional Co-ordinator; PPP Advisory Services; Corporate Strategy Roll Out Team
- Jan 2008 to
Sept 2008 **Arcus GIBB** – Discipline Leader and Director: Environmental Services; Organisational Manager Environmental Services North; Environmental Technical Director; Director: Support Services (IT, HR, Marketing, Knowledge Management); PPP Advisory Services; Corporate Strategy Roll Out Team
- Oct 2006 to
Dec 2007 **Arcus GIBB** – Discipline Leader and Director: Environmental Services; Director; Support Services (IT, HR, Marketing); PPP Advisory Services; Committee Member: Arcus GIBB Employment Equity Committee; Head: Arcus GIBB Corporate Strategy Roll Out Team; Chair: Arcus GIBB Remuneration Committee; Member: Arcus GIBB Bursary Committee
- April 2005 to
Sept 2006 **Arcus GIBB** – Director; National Group Manager of Environmental Services Division, Member: Arcus GIBB Operational Management Team; Member: Arcus GIBB Employment Equity Committee, PPP Advisory Services
- April 2004 to
April 2005 **Arcus GIBB** – Senior Associate; National Group Manager of Environmental Services Division, Member of Operational Management Team, PPP Advisory Services
- Jan 2003 to
April 2004 **UCT and ESADE's (Barcelona, Spain) Business School's Full-time Master of Business Administration (MBA) and Exchange Programme**
- April 2002 to
Jan 2003 **Arcus GIBB** – Associate; Division Manager of Environmental Services Division Cape Town; Business Development Manager, Southern Region
- Jan 2000 to
Mar 2002 **Arcus GIBB** – Associate; Division Manager Environmental Division Cape Town
- April 1998 to
Dec 1999 **GIBB Africa** – Principal Environmental Scientist
- Feb 1997 to
March 1998 **GIBB Africa** – Environmental Scientist

Key projects include:

Strategic Advisory Studies

- Project director as part of the Strategic Advisory Team to the Airports Company South Africa for the proposed Midfield Development at OR Tambo International Airport
- Project director as part of the Strategic Environmental Technical Support Team to the Gauteng Provincial Government for the R20 million Gautrain Project. Technical support will be provided during the construction and operational phases of this flagship transport service

Strategic Environmental Assessments

- Project director for the Strategic Environmental Assessment (SEA) and Integrated Waste Management Plan for the Greater Port Harcourt, Nigeria

- Project director for the George Municipality Strategic Environmental Assessment (SEA) for 1 068 km² municipal area in support of the Spatial Development Framework and seven Strategic Development Plans
- Project director for the Strategic Environmental Assessment (SEA) of the one million ha Heritage Park. This ecologically sensitive, socio-economically complex Park will encompass Pilansberg and Madikwe Nature Reserve and cross the border between South Africa and Botswana
- Project director for the Strategic Environmental Assessment (SEA) of the Vaalkop Dam Provincial Nature Reserve. This proposed nature reserve will encompass the Vaalkop Dam and surrounding area and link up with the Pilansberg Nature Reserve
- Project director for the Strategic Environmental Assessment (SEA) for the Magaliesberg and Mulderdrift Regions for Eskom. The SEA considers the environmental attributes of the study area and suggests an environmental planning framework specific to the needs of Eskom Distribution

Environmental Studies (including Land-Use and Sensitivity Analyses)

- Project director for the environmental scans for the Baralink Commuter Rail Corridor in the City of Johannesburg Metropolitan Municipality. The environmental scan involved the identification of environmentally sensitive areas in close proximity to the proposed Rail Corridor and the suggestion of recommendations for the preliminary design stage of the project
- Project director for the environmental scans for the PWV 10 (Metro Boulevard) in the City of Johannesburg Metropolitan Municipality. Sensitive environmental features were identified spatially and these areas were incorporated into the preliminary design of the road
- Project manager for the environmental study to investigate the proposed irrigation schemes within Olifants/Doring River catchment. The Western Cape Olifants/Doring River Irrigation Study (WODRIS) is a comprehensive study for the Provincial Administration of the Western Cape (PAWC) and is in line with government objectives of integrated river basin management and human settlement
- Project manager for the biophysical assessment of the Spier Development. A development planning process was initiated with the two local authorities, the Stellenbosch Municipality and the Winelands District Council. The proposed development consists of building, recreational and agricultural development types. Arcus GIBB was appointed to undertake a biophysical assessment and land-use planning exercise as part of the scoping study for the Master Vision of the Spier Development
- Project manager for the environmental sensitivity analysis for Elandsjagt Farm, at the western end of the Du Toit's Kloof valley. Arcus GIBB was appointed by Intersite Property Management Services to undertake an opportunities and constraints study in order to determine the viability of developing the site for commercial purposes
- Project manager for the environmental sensitivity analysis for proposed development at Grotto Bay on the West Coast. Arcus GIBB was appointed to compile an environmental sensitivity analysis report to guide the planning process for development. This analysis involved the assessment of the baseline biophysical conditions of the site, the identification of the main environmental issues that could affect the proposed development of the study site and recommendations for mitigation measures

- Project scientist for the Swartklip Environmental Study. A division of DENEL (Pty) Ltd, Swartklip Products, plan to redevelop portions of their 540 ha site near Khayelitsha in Cape Town. Arcus GIBB undertook an environmental analysis of the site to determine which parcels of land were suitable for development purposes

Environmental Impact Assessments (EIA)

- Project director for the Basic Assessment processes for nine proposed Co-generation Power Plants for the Promethium-Exxaro Joint Venture. This project includes nine cogeneration power plants, to be installed at mines and industrial facilities across South Africa, for the generation of electricity from waste gas. The projects will enable the project initiator to earn Carbon Credits through the Clean Development Mechanism in terms of the Kyoto Protocol under the United Nations Framework Convention on Climate Change
- Project director for the Environmental Impact Assessment for the proposed Mulilo Coal Fired Power Station and associated infrastructure as well as associated power lines and substations in the Musina area of the Limpopo Province
- Project director for the EIA and EMP for the proposed Transmission Lines (Bantamsklip – Kappa 765 kV and Bantamsklip – Bacchus, Bacchus - Kappa and Bacchus – Muldersvlei 400 kV) for a conventional nuclear power station and associated infrastructure at the Bantamsklip site in the Western Cape (Nuclear 1). The project proponent is the Transmission Division of Eskom Holdings Limited. The EIA includes the screening and selection of suitable corridors, as well as a scoping process and detailed environmental impact assessment. The project includes detailed specialist studies, including social, economic, visual and biophysical, EIA process, public consultation and legal
- Project reviewer (internal) for the EIA and EMP for the proposed upgrade to the Sani Pass, Kwa-Zulu Natal. The project proponent is the Department of Transport. The EIA includes a scoping process and detailed environmental impact assessment, including specialist studies
- Project director and lead reviewer for the Strategic Process Review of the EIA to be undertaken for the Medupi Integration Project in the Limpopo Province including transmission lines and substations for Savannah Environmental
- Project director for the EIA and EMP for the construction of two runways (comprising a new re-aligned runway and second parallel runway) and the Basic Assessment for the upgrade of the access roads at the Cape Town International Airport, for the Airports Company of South Africa (ACSA)
- Project director for the George Western Bypass Road EIA for a 13 km bypass road linking the Outeniqua Pass to the National Road near the George Airport. The proposed road passes through a sensitive socio-economic area comprising 40 small rural properties. Provincial Government of Western Cape
- Project director for the EIA and EMP for the proposed construction, operation and decommissioning of the Pebble Bed Modular Reactor and associated infrastructure in the Western Cape. The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies

- Project manager for the EIA and EMP for the proposed construction, operation and decommissioning of a conventional nuclear power station and associated infrastructure in the Western Cape (Nuclear 1). The project proponent is the Generation Division of Eskom Holdings Limited. The EIA includes the screening and selection of a suitable site for the nuclear plant, as well as a scoping process and detailed environmental impact assessment. The project includes 20 detailed specialist studies, including social and biophysical, EIA process, public consultation, legal and nuclear technology studies
- Project director for the EIA and EMP for the proposed expansion of the Morupule Power Station, Botswana. The EIA includes a detailed environmental impact assessment. The project includes detailed specialist studies, including social, air quality, noise impact studies and public consultation
- Project director for the Environmental Impact Assessment for the route determination of the proposed Metro Boulevard, Gauteng Province
- Project director for the Environmental Impact Assessment for the proposed N1/20 Metro Boulevard Interchange, Gauteng Province
- Project director for the Environmental Impact Assessment for the Westgate – Tarlton – Kromdraai 132 kV Sub-Transmission line and associated infrastructure, Gauteng Province
- Project director for the Basic Assessment for the proposed Watershed – Mmabatho 88 kV Power line. North West Province
- Project director for the EIA and Public Consultation Process for the 260 km 765 kV transmission powerline between Hydra to Perseus substations (Northern Cape and Free State), the 13 km 765 kV transmission power line between Beta and Perseus substations and associated infrastructure. This study involved a detailed impact assessment with extensive public consultation and specialist investigations
- Project director for the EIA for the proposed reclamation and treatment of Gaborone (Botswana) wastewater for potable use. This study involved a number of specialist studies and extensive public consultation
- Team leader for the EIA, Public Consultation Process, EMP, Water Use Licensing Applications, General Authorisation for Water Use and the Department of Mineral and Energy Affairs Applications for the R10 billion Eskom Braamhoek Pumped Storage Scheme in the Drakensberg. The proposed scheme comprises two reservoirs, interconnected by enclosed tunnel systems, with pump turbine units with a potential generation capacity of approximately 1 333 MW
- Project director for the EIA and Public Consultation Process for the City of Johannesburg's flagship Strategic Public Transport Network R250 million project which aims to provide public transport priority measures for 300 km of road network in Johannesburg
- Project director for the EIA and Public Consultation Process for the upgrade to Staatsartillery Road in Pretoria West
- Project director for various residential housing development EIAs in the Tshwane Metropolitan Municipality and Ekurhuleni Metropolitan Municipality
- Project director for the EIA, EMP and Public Consultation Process for the proposed Selebi – Pikwe Water Master Plan, Botswana. The aim of this infrastructure development is to be able to meet the water needs of the rapidly expanding town of Selebi Pikwe

- Project director for the EIA and Public Consultation Process for the closure of Chlookop Landfill site, Kempton Park
- Project director for the EIA and Public Consultation Process for the proposed generation expansion at Morupule Power Station (currently 118 MW), Botswana. The alternative of increasing power imported under a revised agreement with Eskom was evaluated. A number of specialist studies informed the EIA
- Project manager for the EIA of a proposed upgrade to the Blanco Boulevard, a major arterial road in George. This EIA has involved the evaluation of the archaeological, ecological, socio-economic, traffic, traffic noise, and the town and regional planning impacts of the proposed road link. This project has also entailed a public participation process
- Project manager for the EIA for the proposed Francistown Water Master Plan – Immediate Works, Botswana. The aim of this R250 million water infrastructure development is to be able to meet the development water needs of the rapidly expanding Francistown to year 2021. The project includes an EIA with extensive specialist studies and public participation
- Project manager for the EIA for the new restaurant complex at the Kirstenbosch National Botanical Gardens. The scoping report and EMP formed part of the National Botanical Institute's application for a permit to build within the Cape Peninsula Protected Natural Environment
- Project manager for the environmental studies undertaken at Fisantekraal Industrial Estate, Durbanville. This involved the undertaking of an EIA (including specialist studies) development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project manager on the EIA for the proposed upgrade of the Rooisand Nature Reserve, within the Kogelberg Biosphere, Kleinmond. This project included the facilitation of the public participation process, specialist engineering, hydrogeological, archaeological and botanical studies, the development of an EMP for both the construction and operational phases and input into an opportunities and constraints plan
- Project manager for the environmental services undertaken for Helderberg Reservoirs (8, 5, 3 and 2 MI), Somerset West. This involved the undertaking of an EIA (including public facilitation) development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project Scientist for the EIA of the Waste-tech Vissershok Uitspan hazardous waste disposal site at Vissershok, 24 km north of Cape Town. This project involved the evaluation of the biological, physical, air quality, health, social and economic impacts of the location of two hazardous waste sites at Vissershok. In addition, two extensive public participation processes were undertaken as part of the EIA studies. The EIA studies were undertaken in fulfilment of the Minimum Requirements for Waste Disposal by Landfill published by the Department of Water Affairs and Forestry in 1994
- Project scientist for the EIA of a proposed road link between the Outeniqua Pass the National Road 2 (N2) near George. This project entails a road link to the Outeniqua Pass and N2 that will relieve the increasing traffic pressure on the road network of central George. This EIA has involved the evaluation of the archaeological, agricultural, ecological, socio-economic, traffic, traffic noise, and the town and regional planning impacts of the proposed road link. This project has also entailed a public participation process

- Project Scientist for the EIA of the location of the National Road 2 bypassing Knysna. The Department of Transport required an EIA to assess the impacts of a bypass road on Knysna. A number of alternative routes were investigated during the course of this project. Public participation was required to obtain the views of the I&APs along the proposed route
- Project scientist for the \$2 billion Maputo Iron and Steel EIA. The Industrial Development Corporation of SA (IDC) proposed to construct an iron and steel plant in Maputo, Mozambique, using iron ore stockpiled in Phalaborwa, South Africa. The iron ore (6 million tonnes) would be transported via rail or pipeline from Phalaborwa to Maputo. The iron and steel plant would produce direct reduced iron and steel slab (approximately 3.5 million tonnes). Arcus GIBB undertook the EIA for this project
- Project scientist for the Preliminary EIA of alternative locations (Phalaborwa and Maputo) for an iron and steel plant and routes for a proposed slurry pipeline. An international consortium commissioned a study to investigate the feasibility of an iron ore mill in South Africa. Arcus GIBB was commissioned to investigate the environmental feasibility of this large-scale industrial project

Environmental Management Plans (EMP)

- Project director for the compilation of an Environmental Management Plan (EMP) for the construction and operational phases of the Perseus-Gamma, and Hydra-Gamma 765 kV transmission power lines, extension to the Hydra Substation, turn-ins of the Beta-Hydra 765 kV transmission power line to Perseus and upgrading of the Perseus Substation
- Project manager for the Generic Environmental Management Programme for Johannesburg City Parks (JCP). The Generic EMP was developed as a tool for managing the activities of all contractors employed to undertake construction work in the Public Open Spaces within the jurisdiction of the JCP
- Project manager for the Alien Vegetation Management Programme for the implementation of the Working for Water Programme (WWP) for the 300 ha Knysna River catchment. This included the generation of plans from data collected using a helicopter-borne Global Positioning System (GPS) as well as from interested and affected parties, and processed using the Arcinfo/ArcView range of GIS software, provision of recommendations on the time needed to clear the existing infestations and undertake follow-up clearing and setting of measurable goals and indicators against which the success in achieving the objectives of the WWP can be measured
- Project manager for the EMP for the proposed Neptune Interchange Coega Industrial Development Zone (IDZ) in Port Elizabeth. This R1.4 million project will provide the Port Elizabeth area with new industrial opportunities. This project involved the development and implementation of an EMP for the Neptune Interchange contract and Environmental Management Programme (EMPR) for borrow areas for the entire IDZ
- Project manager for the EMP for the proposed construction of Trunk Road 1/1, between George and the Outeniqua Pass. This project involved the upgrading and widening of the 20 km mountain pass, which required environmental input during both the design and construction phases. The appointment included an EMP for the construction phase of the project

- Project manager for the EMP for Thesen Island remediation, Knysna. This R10 million project includes the investigation and remediation of a timber processing plant including creosote and CCA contaminated land. This management involved the development and implementation of an EMP and rehabilitation specifications, and appointment and management of an Environmental Control Officer
- Project scientist for the EMP for Chapman's Peak Drive, Cape Peninsula. The Provincial Administration of the Western Cape commissioned Arcus GIBB to develop an EMP for the rehabilitation of the Chapman's Peak Drive
- Project scientist and rehabilitation specialist for the EMP for the Armaments Testing Facility at Rooiels. Somchem (Pty) Ltd commissioned Arcus GIBB to compile and implement an EMP for decommissioning soil remediation, rehabilitation, revegetation and long term monitoring of 11 ha armaments testing facility in the Kogelberg Biosphere Reserve
- Project scientist for the EMP for the Table Mountain Aerial Cableway upgrade, Cape Town. The National Parks Board commissioned Arcus GIBB to compile an EMP for the construction and operational phase of the R60 million upgrade of the cableway on this internationally renowned landmark. This management plan involved the compilation of environmental specifications to control the activities of the contractor and his staff, thus preventing unnecessary damage to the environment during the construction and operational phase of the project

Integrated Development Planning (IDP)

- Project manager for the compilation of an Integrated Development Plan (IDP) for the Buffalo City Municipality, Eastern Cape. This R2.5 million involved the formulation of issues, strategies, projects and budgets for the next five years through consultation with stakeholders in six Municipal Directorates

Botanical Studies/Rehabilitation Programmes**Succulent Karoo Biome:**

- Project manager for the botanical study for the R250 million Industrial Development Corporation Silicon Metal Project. The project comprised specialist botanical input, GIS mapping and development of an EMP for prospecting that was incorporated into the feasibility study for the establishment of a silicon mine and metal smelter and the prospecting permit application for the proposed mine
- Project manager on specialist environmental input for proposed prospecting and mining by Namakwa Diamond Company (NDC). This project included the provision of specialist botanical input into the Environmental Management Programme Report (EMPR) and Environmental Impact Assessment (EIA) for prospecting and mining of a concession area (2 km wide and 30 km long directly adjacent to the Admiralty Strip) between the Olifants River Mouth and the Namaqua Sands Mine on the West Coast near Lutzville
- Project manager for the specialist environmental input for proposed prospecting and mining Trans Hex. This project included a botanical specialist and rehabilitation study of their surf-zone and Admiralty Strip mining concessions, located between Jakkalshok and Dorningbaai along the Cape West Coast. Phase 1 of the study will comprise a broad vegetation assessment and mapping of the concession area and development of a rehabilitation programme, while Phase 2 will comprise area specific vegetation surveys of the proposed areas to be mined

Fynbos Biome:

- Project manager for the specialist botanical study for the proposed development of a regional landfill facility on the Karweyderskraal site, near Hermanus. The proposed site is approximately 100 ha in size. The aim of this specialist study was to survey the site and assess the potential effects of the proposed landfill would have on the flora present on site
- Project manager for the specialist botanical study for the proposed development of social housing at Meerlust Bosbou. The Winelands District Council initiated this development in order to provide social housing for 422 families
- Project manager for the specialist botanical study of the Cape International Airport (CIA) site for the Airports Company of South Africa. This project involves the extension of the existing CIA northwards to cover the entire 350 ha site within the next 35 to 50 years. The environmental input will be incorporated into the planning phase of the proposed developments at CIA and as baseline information for the environmental management system for CIA
- Project manager for the specialist botanical study for the proposed extension of the Zandvliet or Macassar Wastewater Treatment Works and associated infrastructure. The proposed extensions are required to meet the present and future wastewater capacity problems experienced in the Cape Metropolitan Area. Potential impacts of development and recommendations for their mitigation were made
- Project manager for the specialist botanical study for Phases 1 - 3 of the proposed Blaauwberg City development, potential of development and recommendations for their mitigation were made. A Global Positioning System (GPS) was used to map remnant vegetation
- Project manager for the specialist botanical study for phase 7 of the existing Sunset Beach residential development. This project involves the extension of Sunset Beach northwards and comprises the final phase of the Milnerton Estate's developments, potential environmental impacts of development and recommendations for their mitigation were made

Environmental Audits

- Project director and lead auditor for compliance audits of Eskom's Gourikwa and Atlantis Gas Turbine Power Stations
- Project director for a due-diligence audits of a number of bottling facilities for an international client
- Project director for waste management audits of the Linbro and Marie-Louise waste sites, Johannesburg
- Project manager for the environmental audit for the operation of the Table Mountain Cableway (TMC). The Table Mountain Aerial Cableway Company (TMACC) developed an environmental management system (EMS) for the operation of TMC in accordance with the requirements of ISO 140001. Arcus GIBB were appointed to undertake an external audit. The audit aimed to assess the current status of the EMS for the operation of the TMC and recommend improvement opportunities based on TMACC's EMS

Other Studies

- Project director for the Application for Mining Permits for borrow pits required for the Medupi Coal Fired Power Station, Limpopo Province

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- Project director for the Water Use Authorisation process for identified Water Uses at the Portland Cement Company's Jupiter Cement Plant in terms of the National Water Act
- Project director and manager for the 5-year Strategic Plan for the Department of Water Affairs and Forestry Chief Directorate: Water Resources and Information Management
- Head of Arcus GIBB's corporate strategy implementation team which is responsible for the overall implementation of Arcus GIBB's 5-year Corporate Strategy both at Company and business unit level
- Project manager for the corporatisation of the National SMME Fishing Forum. The National SMME Fishing Forum was established in 1999 to represent small, medium and micro entities, defend their interests and rights, as well as promote their development and participation within the industry. Arcus GIBB were appointed by the Forum to assist with the corporatisation of the organisation in order to maximise on investment and development opportunities that are currently available
- Project manager and institutional advisor on the identification of three candidate sites within each of the 20 identified 'search centres' in or around the Cape Metropolitan Area and the environmental audits preparation of 'site acquisition reports' for Ericsson

Oct 1995 to
Feb 1997

University of Cape Town (Institute for Plant Conservation) - Consultant

Responsible for the planning and execution of specialist vegetation studies in ecologically sensitive areas. Key projects include:

- Developing guidelines for sustainable harvesting of thatching reed
- Environmental assessment of a ecologically rich site on the Southern Cape Coast due to be rezoned and subdivided
- Specialist input relating to the impacts on vegetation within the sites affected by:
 - The upgrades to the Table Mountain aerial cableway system
 - A large entertainment complex on the Cape Peninsula
 - A residential development along the sensitive Cape Peninsula coastline
 - A housing development in the Tygerberg area
 - Three proposed Olympic competition venues in the Cape Peninsula
 - A large multi-purpose community facility in the Cape Peninsula
 - A road upgrade in the Cape Peninsula, and
 - A development corridor in the Cape Peninsula
- Specialist input relating to the management of vegetation within:
 - A sensitive wetland area surrounded by a large entertainment/office park
 - Private nature reserves and
 - A natural area managed for provision of water resources
- Botanical surveys of:
 - A large river catchment area in the Western Cape and
 - A community parkland in the Cape Peninsula

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Jan 1992 to
Sept 1995

University of Cape Town (Department of Botany) - Post-Graduate Student

Completed Masters degree in Botany (Ecology), and was involved in practical classes for undergraduate students and supervision of project assistants

Professional and other Affiliations

Committee member (1997 to 2003) and member (2003 to present), International Association for Impact Assessment

Member, Environment Sub-Committee, Cape Peninsula Protected Natural Environment Sub-committee and General Committee (Portfolio – Environment), Mountain Club of South Africa, 1997 - 2003

Member, Botanical Society of South Africa, 1996 to present

Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Fair	Fair	Fair
Spanish	Basic	Basic	Basic

Signature

Date

CURRICULUM VITAE

Company Name	Arcus GIBB
Nationality	Russell STOW South African
Date of Birth	05.11.1975
Profession	Environmental Scientist
Position	Associate Environmental Scientist
Specialisation	Environmental Impact Assessments (EIAs), Estuarine, Coastal and Intertidal Assessments and Management Systems, Environmental Planning, Environmental Sensitivity Mapping, Environmental Constraint Analysis, Environmental Management Programmes/Plans (EMPs), Environmental Auditing, Public Involvement Processes, SASS5 Riverine Health Assessments and Management
Start date with Arcus GIBB	2007 – Permanent full-time staff member

Key experience

A senior environmental scientist with nine years experience, Russell Stow specialises in a wide-range of environmentally related projects, processes and applications for private, commercial and industrial clients, in addition to local, provincial and national government departments and municipalities.

His key experience includes:

- **Environmental Impact Assessment (EIA)** of small, medium and large-scale infrastructure projects, including public participation processes
- **Environmental Management Programmes (EMP)** for the construction and operational phases of infrastructure developments
- **Environmental sensitivity and land-use suitability** using Geographic Information Systems (GIS) for planning and co-ordinating proposed developments and conceptual projects
- **Environmental Management Plans** for small, medium and large-scale infrastructure projects focussed on ensuring construction and operational environmental impacts are accurately defined and appropriately mitigated
- **Environmental Auditing** for small, medium and large-scale infrastructure projects measuring non-compliances against the conditions of the granted authorisations
- **Surface and Groundwater Water Monitoring** at large industrial sites comprising site assessment and sample collection for laboratory analysis
- **Catchment Management Strategy Design** for the management of resources and the planning of infrastructural developments within catchments in the eThekweni Municipality jurisdiction
- **Basic Geographic Information Systems (GIS)** use in EIAs and environmental planning projects as a tool to manipulate data and interpret project impact limitations and possible planning design scenarios

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- **Environmental Sensitivity Studies** as an environmental planning tool for planning and co-ordinating proposed developments and conceptual projects
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Qualifications

Bachelor of Science (Biology and Environmental Management) : University of Natal, Durban, 1997

Bachelor of Science (Environmental Biology) (Honours) : University of Natal, Durban, 1998

Master of Science (Zoology) : Rhodes University, Grahamstown 1999 - (not completed)

Short Course on SASS5 - Riverine Health Assessment

Professional Member of the South African Council for Natural Scientists, 2007

PriSciNat No : 400089/07

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Career summary

Sept 2007
to date

Arcus GIBB – Associate Environmental Scientist

Responsible for leading the environmental team and environmental projects at the Durban Office, fulfilling the role of Environmental Assessment Practitioner (EAP) for EIAs, fulfilling the role as senior project scientist and reviewer for environmental projects and providing technical information technology coordination support at the Durban Office

Feb 2001 to
Aug 2007

SRK Consulting – Senior Environmental Scientist

Started as a junior scientist and worked way up to senior environmental scientist responsible for managing the environmental team and overseeing and reviewing all projects. Also responsible for project management and reporting to senior management on project financials

Jan 1998 to
Jan 2001

Kantey & Timpler Consulting Engineers – Environmental Scientist (Part time)

Responsible for undertaking environmental scoping studies and contamination and monitoring projects

Project experience

Key projects and associated responsibilities include:

Environmental Impact Assessment

- Richards Bay John Ross / West Central Arterial Road Interchange Modification EIA. The proposed project intends to reduce public safety risks related to the transport of molten Aluminium between the Hillside and Bayside Aluminium Smelters. Project leader and Environmental Assessment Practitioner (EAP). BHP Billiton Bayside, 2009-ongoing
- King Shaka Airport Watson Highway EIA. The construction of a proposed 3km link road which will link the King Shaka Airport to the Watson Highway to create a northern access route. Project leader and EAP. Dube Trade Port, 2009-ongoing
- King Shaka Airport Billboard Basic Assessment. Installation of ten (10) electronic billboards at the new King Shaka Airport. Project leader and EAP. Dube Trade Port, 2009-ongoing
- DTP uMhloti Wastewater Pipeline Basic Assessment. Installation of a wastewater pipeline to link the new King Shaka Airport and Support Zone to the Municipal uMhloti Wastewater Treatment Plant. Project leader and EAP. Dube Trade Port, 2009-ongoing
- Sani Pass Road (P318) Phase 2 Upgrading EIA. Upgrading of the mountain pass with improved engineering, appropriate infrastructure and water management systems to reduce and prevent the current environmental impacts while making the Pass more accessible for all road users. Project leader and EAP. Department of Transport, 2008-ongoing

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- Port of Durban Pipe Rack Upgrade EIA (Basic Assessment). Upgrading of the existing pipe rack system from berth 2 to berth 10 (bunker berth) at the Island View Facility in the Port of Durban through modification and extension to allow for additional pipes to be added to the network. Project leader and EAP. Transnet, 2008-2009
- Bizana Integrated Energy Centre EIA. Construction of the Integrated Energy Centre in Redoubt near Bizana in the Eastern Cape to provide the rural community with a facility to purchase variable energy resources and educate them on how to utilise the energy safely. The centre also included a fuel filling station, stores to purchase common goods and stalls to sell local wares. Project leader and EAP. PetroSA, 2009–ongoing
 - Petroleum Industry EIAs (more than 25). Construction of new retail service stations and commercial installations and the upgrade of existing sites in the KwaZulu-Natal, Gauteng and the Eastern Cape provinces. Project leader and EAP. Shell (Pty) Ltd, Total (Pty) Ltd, Caltex (Pty) Ltd and Sasol Oil (Pty) Ltd. Project leader and EAP, 2001-2007
 - uThungulu Regional Community Projects EIAs. Variety of development projects including the construction of roads, community facilities and water supply projects. Project leader and EAP. uThungulu District Municipality, 2006
 - NCP Alcohols Plant Upgrading EIA. Decommissioning of the phthalates and mining chemicals processes and expansion and modifications to the alcohol production facility and associated processes and facilities such as fuel and final product storage, wastewater treatment and discharge and stormwater management system. EAP. NCP, 2001-2003
 - Simunye Sugar Estate Distillery expansion and relocation of the Stillage/Fertiliser Blending Plant EIA. Initial environmental evaluation for the upgrading and expansion of the existing distillery adjacent to the Simunye Sugar Mill (Mill) to increase the production of ethanol to 30 million litres per annum for both the local and international market, and relocation of the stillage/fertiliser blending plant. The existing effluent plant will be modified to include construction of a wetland consisting of series of stabilising ponds to improve polishing of the final effluent for irrigation. EAP. Simunye Sugar Estate, 2005
 - Mondi Kraft Plant upgrade EIA. The project of this plant in Richard Bay was to increase production of bleached hardwood paper pulp and white top linerboard through optimisation of the existing site infrastructure with installation of new bleaching plant and digester. Public liaison officer. Mondi Kraft, 2003-2004
 - Richards Bay Wetland Crossing EIA. Earthfill embankment across a wetland in Richards Bay, KwaZulu-Natal, was to provide road access to individuals residing in approximately 50 households within the Mzingazi Village. The embankment would also carry water and sanitation services via pipelines built into the embankment to the households. EAP. uMhlathuze Municipality. 2004
 - BHP Billiton Hot Metal Link Road EIA. Construction of a private link road between BHP Billiton's Hillside and Bayside Aluminium Smelters for the transportation of hot liquid Aluminium between the two facilities, to reduce the risks associated with transporting liquid metals on public roads. Project Leader and EAP. BHP Billiton, 2004-2005

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- KwaBulawayo Tourism Centre EIA. Development of the KwaBulawayo Tourism Centre on the historical site of the King Shaka's original Royal Town, Bhekeshowe, KwaZulu-Natal, with the intention of combining tourism of historical sites with development. This was in order to draw local, provincial, national and international tourists to the Bhekeshowe area, thereby promoting local economic development. Project Leader and EAP. uThungulu District Municipality, 2005
- Impendle Landfill Site EIA. Identification of a suitable site for the development and permitting of a new landfill site for the Impendle Municipality, Impendle, KwaZulu-Natal. Project Leaders and EAP. Umgungundlovu District Municipality, 2005-2007
- Caustic Soda Aluminate (CSA) Production Facility Upgrade EIA Exemption Application. Exemption application for the proposed construction of a new 16 000 ton/year CSA Production Facility as part of the existing CI compound, adjacent to the aluminium sulphate plant, at Chemical Initiatives (Pty) Ltd, Umbogintwini Industrial Complex, Durban. Project Leader and EAP. Chemical Initiatives, 2006
- Caustic Soda Production Facility EIA Exemption Application. The application was for the construction of a facility to produce and store to 40 000 tons per year of 50% caustic soda solution (ie 20 000 tons of solid sodium hydroxide used per year) for supply to Tioxide and international export at Chemical Initiatives (Pty) Ltd, Umbogintwini Industrial Complex, Durban. Project Leader and EAP. Chemical Initiatives, 2006
- Isogen Butane Upgrade EIA. Upgrading of Isogen Industrial Plant, Sapref Park, Isipingo, Durban, to eliminate the use of benzene in the Maleic Anhydride (MA) Manufacturing Facility and increasing MA production. This was to be achieved by constructing and operating a second 12 000 tpa butane-based MA manufacturing facility (MA3) and upgrading the current benzene-based MA manufacturing facility to utilise butane, increasing capacity by 13 000 tpa. Project Leader and EAP. Isogen, 2006-2007
- Defy Gas Conversion Upgrade EIA. Installation and operation of a gas-fired boiler and conversion of the dryer system from LP gas to Sasol gas at Defy Appliances Ltd, Jacobs, Durban, KwaZulu-Natal. Defy propose replacing the electrical heating elements with gas-fired steam boiler system operating on methane rich Sasol gas located adjacent to the factory workshop and in close proximity to the gas station which the connection point to the existing Sasol gas network. Project Leader and EAP. Defy Appliances Ltd. 2005
- Thor Rehabilitation EIA. Treatment and disposal of mercury waste and decontamination of the Thor Chemicals' site with the intention to initiate and implement corrective action to resolve the long-term concerns associated with the storage of the mercury containing wastes and materials and contamination of the site. In essence, this involves defining and quantifying the wastes and materials on the site, identifying a suitable treatment and disposal method, and supervising the cleanup process. EAP. Thor Chemicals, 2004-2006
- Lake District Housing Extension EIA. Extension of the Lake District Housing Estate, Gillits, Durban to include 19 additional units, all associated infrastructure and a causeway across a wetland. Project Leader and EAP. Glasgow Housing, 2006-2007
- Safal Steel Metal Treatment Plant EIA. Construction of a Sheet Metal Treatment Plant in Cato Ridge, Durban, in which raw sheet metal is treated, processed and painted to produce roof sheeting for use in large industrial warehouses. The facility would produce 130 000 tonnes of processed sheets per annum. Project Leader and EAP. Safal Steel (Pty) Ltd, 2006-2007

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- **Environmental Management Plans and Programmes**

- Orange River Diamond Prospecting EMP. Developed Environmental Management Programme to comply with the requirements of applying for a permit to prospect for Diamonds along the Orange River north of Kimberly, Northern Province. EAP. New Diamond Corporation Diamond, 2002
- Port St John's Lily Lodge Resort Upgrade EMP. Development of a conference centre comprising a main hall and smaller seminar rooms at the Lily Lodge Resort in the sand dunes of 2nd Beach, Port St John's, Eastern Cape. Project Leader and EAP. Private, 2003
- Newchem Paint Manufacturing Plant Upgrade EMP. Construction and operation of the new paint manufacturing plant in conjunction with the Technipaint Distribution Warehouse in Jacobs, South Durban. Project Leader and EAP. Technipaint, 2003-2005

Monitoring

- DOW Canelands Water Quality Monitoring. Monitoring of surface water quality at the DOW Canelands Manufacturing plant as part of DOW's routine surface water quality monitoring program that is conducted on a bi-annual basis, the primary purpose of which is to enable site staff to monitor and manage impacts from the on-site activities on the surface water drainage system at on and off-site locations. EAP. DOW Canelands, 2001-2005
- Dry Bulk Terminal Dust Monitoring Study. Baseline dust fall-out monitoring study at the dry bulk terminal (DBT) in the Richards Bay harbour to establish an estimate of the dust fall-out status for the current site conditions and anticipated off-site areas of impact for parameters related to the current activities on the site and use the results to plan for long term monitoring and air quality management at the site. EAP. Portnet, 2003-2004
- Mhlatuzana River Trashtrap Environmental Control Officer (ECO). ECO for the construction of an experimental trashtrap on the Mhlatuzana River, Durban, to collect and store litter and trash which accumulates in the river. ECO. eThekweni Municipality, 2003

Strategic and GIS-based Projects

- Ohlanga Estuary Ecological Advisor. Environmental advisor and researcher into the potential environmental impacts of the proposed discharge of additional effluent from the Municipal Treatment Works into the Ohlanga River on the ecology of the Ohlanga Estuary. Environmental advisor. eThekweni Municipality. 2003-2004
- DAEA Solid Waste Inventory. Compilation of a GIS internet-based interactive electronic inventory to provide the Department of Agriculture and Environmental Affairs (DAEA) with details of the current status of all solid waste sites in KwaZulu-Natal (KZN) through a preparation and distribution of a questionnaire, capture and data analysis, generation of a electronic interactive map (linked to captured data), and training of DAEA Staff on the use and management of the electronic inventory. EAP and surveyor. Department of Agriculture and Environmental Affairs, 2002-2003

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- eThekwini Catchment Planning Guideline. Development of a guideline for catchment planning within the eThekwini Municipality with emphasis on strategic considerations and environmental management. EAP. eThekwini Municipality, 2003
- Gold Course Housing Estate Ecological Sensitivity Study. Environmental Sensitivity Mapping Study for the proposed development of a Housing Estate on the Richards Bay Country Club Golf Course, Richards Bay, KwaZulu-Natal. The project was essentially a Geographic Information System (GIS)-based mapping exercise which focussed on biophysical and ecological aspects to determine environmentally suitable areas of the Richards Bay Country Club for the potential development of a housing estate. Project leader and EAP. Umhlathuze Municipality, 2004
- Crime Prevention Through Environmental Design Project. Phase 1: Open Space Identification and Auditing. The study aimed to identify and audit all the zoned open spaces within the uMhlathuze Municipality in order to categorise them in relation to crime potential by their environmental value (Ecological and biodiversity), social value and development value. Environmental analyst. uMhlathuze Municipality, 2004-2005

Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Good	Excellent	Excellent

Signature	Date
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CURRICULUM VITAE

Company	Arcus GIBB
Name	Rashieda DAVIDS
Nationality	South African
Date of birth	06.01.1983
Profession	Environmental Management Consultant
Position	Environmental Scientist
Specialisation	Integrated environmental management
Start date with Arcus GIBB	2007 – Permanent full-time staff member

Key experience

An environmental scientist with five year of experience, Rashieda Davids specialises in various environmental disciplines.

Her key experience includes:

- **Integrated environmental management studies for the establishment, operation and auditing** of general waste infrastructure, mixed use developments and linear infrastructure
 - **Environmental Impact Assessments (EIAs)** of small, medium and large-scale infrastructure projects, including public participation processes
 - **Environmental Management Programmes (EMPs)** for the construction and operational phases of infrastructure developments
 - **Strategic Environmental Management** such as Strategic Environmental Assessments
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Qualifications

Bachelor of Science (Environmental, Geographical Science, Ocean & Atmosphere Science) : University of Cape Town, 2004

Bachelor of Science (Honours) (Environmental & Geographical Science) : University of Cape Town, 2005

R DAVIDS CV SHEET 2

Career summary

June 2007 to
date

Arcus GIBB – Environmental Scientist

Responsibilities included project scientist, Environmental Assessment Practitioner and/or task leader for a range of projects including environmental impact assessments, environmental management programmes, integrated environmental management plans and business and asset management plans

Nov 2005 to
May 2007

The Environmental Partnership – Junior Environmental Practitioner

Responsibilities included project scientist and/or task leader for a range of projects including environmental impact assessments, environmental management programmes, compliance monitoring and strategic environmental assessments

Project experience

Key projects and associated responsibilities include:

Environmental Impact Assessment (EIA) and Environmental Management Plan/Programme (EMP) Combinations

- Nuclear 1 Project EIA and EMP. The Nuclear 1 project is the proposed construction of a conventional nuclear power station and associated infrastructure in the Western Cape. The EIA includes the screening and selection of a suitable site for the nuclear plant, as well as a scoping process and detailed environmental impact assessment. The project involves 20 detailed specialist studies, including social and biophysical, public consultation, legal and nuclear technology studies. Project scientist. Generation Division of Eskom Holdings Limited, 2008-ongoing
- Pebble Bed Modular Reactor (PBMR) and associated infrastructure EIA and EMP. The EIA includes a detailed EIA, detailed specialist studies, including social and biophysical, public consultation, legal and nuclear technology studies. Project scientist. Generation Division of Eskom Holdings Limited, 2008-ongoing
- Sani Pass Road (P318) Phase 2 Upgrade EIA and EMP. The Sani Pass is located in the Drakensberg/Ukhahlamba World Heritage Park. The intention of the project was to upgrade a 19km section up to the summit of the Pass by improving the engineering of the road and installing water management systems to reduce and prevent the current environmental impacts, while making the Pass more accessible for all road users. The sensitive environment and the Pass being a local and international tourist attraction resulted in the EIA requiring extensive environmental assessment and detailed subcontracted specialist studies, including aquatic, avifaunal, botanical, social & tourism and visual impact assessments. An extensive public participation process due to the significant public interest in the project was also required. Environmental Assessment Practitioner and project scientist. Department of Transport, 2008-ongoing

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- NCP Substation Project EIA and EMP. The NCP Substation Project concerns the proposed construction of a new 132/11 kV substation at Umgeni Business Park, Durban. The substation is to replace an existing Substation that is reaching the end of its life expectancy. The EIA included detailed assessment and a subcontracted specialist geotechnical site assessment for landfill gas associated with historical waste dumping. Environmental Assessment Practitioner and project scientist. eThekweni (Durban) Municipality Electricity Department, 2008-ongoing
- Assagay trunk water main EIA and EMP. The 3 km water main is proposed to provide additional support to an existing 400 mm diameter water main and to feed the expanding Summerhills community. The EMP provides for the construction and operational phases of the trunk water main. Environmental Assessment Practitioner and project scientist. eThekweni (Durban) Municipality Water and Sanitation Department, 2009-ongoing
- Dube Tradezone wastewater pipeline EIA (Basic Assessment) and EMP. The proposed installation of a wastewater pipeline is to service the new Dube Tradezone as well as Mount Moreland residential area in the north of the eThekweni (Durban) Municipal Area. The EMP provides for the construction and operational phases of the pipeline. Environmental Assessment Practitioner and project scientist. iDube Tradeport, 2009-ongoing
- King Shaka International Airport and Dube Tradezone advertising board EIA (Basic Assessment) and EMP. The proposed project concerns the erection of large advertising boards at the new airport and tradezone at La Mercy in the north of the eThekweni (Durban) Municipal Area. Environmental Assessment Practitioner and project scientist. iDube Tradeport, 2009-ongoing
- Cape Town 2010 World Cup Stadium and associated infrastructure EIA and EMP. The EIA included a detailed EIA process with extensive public participation. A number of specialist studies informed the assessment, including social, economic, noise, archaeological, heritage, visual and transport. Project scientist and EMP Task Leader. City of Cape Town, 2006

Environmental Impact Assessments (EIAs)

- Cape Town Vissershok Hazardous Landfill Site Extension EIA Project. The project concerned the evaluation of the environmental impact of the current operations of the existing landfill site, and proceeded to provide mitigation measures to reduce identified impacts. The EIA included an air quality study and extensive public participation. Project scientist. City of Cape Town, 2006
- Oude Molen Eco Village/Sustainable Neighbourhood EIA. The project undertakes to implement sustainable energy and waste initiatives, in line with the latest technology. Project scientist. City of Cape Town, 2007
- Lamberts Bay Harbour potato factory wall repair work EIA (Basic Assessment). The potato factory is located below the high-water mark of the sea, which necessitates the reinforcement of the back wall against wave action, including the installation of concrete dykes. Project scientist. Potato World, 2006
- Paarl Housing Project EIA (Basic Assessment). The project included the construction of residential housing units and associated infrastructure. Project scientist. City of Cape Town, 2007

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Environmental Management Plans (EMPs)

- Gamma Perseus 765 kV power line Construction and Operation EMP. Project scientist. Eskom Transmission, 2007
- Ezemvelo KwaZulu-Natal Wildlife Nature Reserve Integrated Management Plans (IMPs). Individual IMPs were developed for five nature reserves within the KwaZulu-Natal province for Krantzklouf, Oribi Gorge, Umtamvuna, Chelmsford and Ncandu Nature Reserves. The IMPs provide for sustainable management of each of the reserves in terms of protection of the integrity and value of environmental resources, providing measurable benefits to host communities and enhancing the satisfaction of visitors. Project scientist. Ezemvelo KZN Wildlife, 2008-2009
- Dreamworld Film City EMP. Project scientist. City of Cape Town, 2007
- Hout Bay Harbour Rock Apartments EMP. Project scientist. City of Cape Town, 2006

Strategic Environmental Assessments (SEAs)

- Cape Town Klipfontein Corridor Public Transport System Environmental Strategic Study. The study considers the environmental attributes of the study area and suggests an environmental planning framework specific to the needs of Cape Town in terms of a public transport system. Project scientist. City of Cape Town, 2005–2006
- Cape Town Klipfontein Corridor Public Transport System Environmental Framework Plan. The study assesses the design, infrastructure and planning proposals for the public transport system against the environmental, social and economic aspects of the study area. Project scientist. City of Cape Town, 2006

Other projects

- Ilembe District Municipality Water Services Provider Business Plan Compilation. Project scientist. Ilembe District Municipality, 2009
- Ilembe District Municipality Water Services Provider Asset Management Plan Compilation. Project scientist. Ilembe District Municipality, 2009
- Sisonke District Municipality Water Services Provider Asset Management Plan Compilation. Project scientist. Sisonke District Municipality, 2009
- Sisonke District Municipality Water Services Provider Revenue Management Plan Compilation. Project scientist. Sisonke District Municipality, 2009

R DAVIDS CV SHEET 5

Language capability

	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Good

Signature

Date
