

### Qualifications

MPhil (Environmental Management)

NDip (Forestry)

BTech (Forestry)

### Professional registrations

Member, International Association for Impact Assessment, South Africa (IAIASa)

### Specialisation

Project Leader/Senior Environmental Practitioner

# 16

years in industry



## Patrick Killick

### Environmental Practitioner

Patrick has a foundation in construction phase environmental management including supervision and hands-on environmental management, site remediation solutions, monitoring of construction related environmental impacts and occupational health and safety. His supervision experience was gained on a range of projects including dams, roads, pipelines, underground works, weirs, and residential villages, which includes four years' experience in a full time environmental management officer role on the award-winning Berg River Dam Project near Franschhoek, Western Cape. As a result of which he is well versed in the site management systems, processes and the practicalities of environmental site management. Patrick remains very practical environmental manager as a result of this experience.

Patrick's more recent experience involves impact assessment in a variety of industries whilst undertaking a myriad of environmental impact studies and other regulatory and planning processes for various developments within RSA, Angola, Mozambique, Tanzania and Namibia. His project experience centres on the areas of municipal bulk water supply and wastewater treatment infrastructure, waste management facilities (including H:h landfill class), bulk thermal power generation (Gas, HFO and Coal), utility scale renewable energy projects (wind and solar) (as part of the REI4P), seawater desalination (SWRO) including marine, estuarine and coastal issues, open pit mining (coal and uranium) and associated mining infrastructure. With a keen interest in the technical aspects of his projects he enjoys exposure to technical aspects of each new industry and understanding the technologies and processes and the environmental challenges associated with each. Patrick's key competency is seated in the development and implementation of Environmental Management Programmes and the associated compliance monitoring.

Patrick also plays a role in the management and development of proposals for various prospects pursued throughout the African continent and contributes to the maintenance of several business planning databases in this regard. Patrick also provides support and guidance to other environmental project leaders on project management related matters.

## Experience

**Basic Assessment to add a 200MW Battery Storage System to the approved Koeris Wind Energy Facility, near Springbok in the Northern Cape. 2020-08. Project leader:**

Appointed by Mainstream Renewable Energies to undertake a BA, in terms of the NEMA EIA Regulations, 2014, to add a BESS and water storage reservoir to the approved Koeris Wind Energy Facility. A fast track process was required to submit a BA within 2months of appointment so the project may be bid as part of the Risk

Mitigation IPP Procurement Programme (RMIPPPP) which aims to urgently procure 2000MW of new generation.

**EA Amendment for the 90MW Wolf WEF EA amendment, Wolwefontein, Eastern Cape, RSA: 2019-08 → 2020-07 Project Leader**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake a Part 2 amendment, in terms of the NEMA EIA Regulations, 2014, of an environmental Authorisation for the Wolf Wind Energy Facility near Wolwefontein in the Eastern Cape. The Amendment centred on a change to the specifications of the proposed wind turbines, increased rotor diameter, tower height.

**EA Amendment for the 200MW Hotazel Solar Park, Hotazel, Northern Cape, RSA: 2019-07 → 2020-10 Project Leader**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake an EA amendment to expand and split the 200MW solar PV facility and associated infrastructure, including a 100MWh grid scale battery storage facility on a site near Hotazel in the Northern Cape into two discreet projects.

**Nuweveld wind farms and powerline near Beaufort West in the Western Cape. 2019-02 → ongoing Project leader**

Commissioned by Red Cap Energies (and its subsidiaries) to undertake a suite of applications associated with the Nuweveld Wind Farms project. The applications include a detailed screening and constraints assessment to inform the project layout and design followed by an integrated multi-application for three 140-240MW wind farms (up to 720MW total) and a ~120km powerline (both 132kV and 400kV) and associated infrastructure. In practice, the powerlines are mutually exclusive. Which powerline option will be implemented will be determined by Eskom at the time of construction and depend on strategic imperatives at the time. The four applications are run in parallel with integrated specialist's assessment and public participation.

**EA Amendment to increase wind turbine size associated with the proposed 140MW Koeris Wind Energy Facility, near Springbok in the Northern Cape. 2018-10 → ongoing: Project leader**

Appointed by Mainstream Renewable Energies to undertake a Part 2 amendment, in terms of the NEMA EIA Regulations, 2014, of an environmental Authorisation for the Koeris Wind Energy Facility. The Amendment centred on a change to the specifications of the proposed wind turbines, increased rotor diameter, tower height and extending EA validity period.

2018-10 → 2019-08

Project leader Basic Assessment for the storage of dangerous goods at the proposed 140MW Koeris Wind Energy Facility, near Springbok in the Northern Cape. Appointed by Mainstream Renewable Energies to undertake a basic assessment to allow for the temporary onsite storage of diesel fuel associated with the construction phase of the Koeris Wind Energy Facility.

**Wallerawang Ash Repository closure and rehabilitation project, Lidsdale, New South Wales, Australia: 2018-06 → 2018-06 Team Member**

Appointed by EnergyAustralia NSW Pty Ltd to undertake an EIA for the closure of the Wallerawang Ash Repository following the closure of the Wallerawang Coal-fired Power Station in 2014. The ~200ha Wallerawang Ash Repository comprises Kerosene Vale Ash Repository (KVAR), Kerosene Vale Ash Dam (KVAD), Sawyers Swamp Creek Ash Dam (SSCAD), Lidsdale Cut landfill area, an asbestos repository and infrastructure that services these land uses including a pipeline easement, access tracks, haul roads and water management features. Personal responsibilities included the assessment, management and mitigation of noise and vibration aspects.

**EA Amendment for the 96MW Wolf WEF EA amendment, Wolwefontein, Eastern Cape, RSA: 2018-04 → 2018-11: Project Leader**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake a Part 2 amendment, in terms of the NEMA EIA Regulations, 2014, of an environmental Authorisation for the Wolf Wind Energy Facility near Wolwefontein in the Eastern Cape. The Amendment centred on a change to the specifications of the proposed wind turbines, increased rotor diameter, tower height and extending EA validity period.

**Environmental monitoring and review for the 2M<sup>3</sup>/d Emergency Desalination Plant EIA application, Plettenberg Bay, Western Cape, RSA: 2018-02 → 2020 Project leader:**



Appointed by Bitou Municipality to undertake a review of the impacts of the pilot operations phase in terms of marine and estuarine ecology, hydrology to provide the Department of Environmental Affairs with additional information needed conclude the S24G application process for the Plettenberg Bay Desalination Plant.

**Project Leader EA Amendment for the 140MW Namies WEF, Aggeneys, Northern Cape, RSA: 2017-11 → 2018-09:**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake a Part 2 amendment, in terms of the NEMA EIA Regulations, 2014, of an environmental Authorisation for the Namies Wind Energy Facility near Aggeneys in the Northern Cape. The Amendment centred on a change to the specifications of the proposed wind turbines, increase blade tip and increasing generation power requiring review of the Avifauna (bat and bird), visual, noise and transport related aspects of the project.

**ESIA and RAP for the Zambeze coal mine, Tete, Mozambique. 2015-10 → ongoing: Project controller:**

Appointed by ICVL to undertake a combined ESIA and RAP for a Greenfields coal mine and associated infrastructure on the outskirts of Tete city in Mozambique. Patrick was brought later in the process to provide specialist project and financial management services for the project.

**EA Amendment for a 39MW Outeniqua Wind Farm, near Uniondale, WC, RSA: 2017-07 → 2017-07 Project Leader:**

Appointed by Juwi Renewable Energies (Pty) Ltd to undertake minor amendment of the Environmental Authorisation (EA) via a Part 1 application for amendment of the EA as provided for in the Section 30 of the EIA Regulations, 2014

**EIA for the 200MW Hotazel Solar Park, Hotazel, Northern Cape, RSA: 2016-03 → 2017-08 Project Leader:**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake an EIA for a 200MW solar PV facilities and associated infrastructure, including a 100MWh grid scale battery storage facility on a site near Hotazel in the Northern Cape as well as Transmission lines to evacuate power. The multiple applications were run as a consolidated or combined application as allowed for by NEMA and allowed for a cost-efficient delivery of service to the client.

**BA for TX lines associated with 200MW Hotazel Solar Park, Hotazel, Northern Cape, RSA: 2016-03 → 2017-08: Project Leader:**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake an EIA for a 200MW solar PV facilities and associated infrastructure, including a 100MWh grid scale battery storage facility on a site near Hotazel in the Northern Cape as well as Transmission lines to evacuate power. The multiple applications were run as a consolidated or combined application as allowed for by NEMA and allowed for a cost-efficient delivery of service to the client.

**EA Amendment for the Kangnas and Koeris wind energy facilities, Northern Cape, RSA: 2016-02 → 2016-09: Project Leader:**

Appointed by Mainstream Renewable Power (Pty) Ltd to undertake two Part 2 amendment and one Part 1 amendment, in terms of the NEMA EIA Regulations, 2014, of an environmental Authorisation for the Kangnas and Koeris Wind Energy Facilities. The Amendment centred on a change to the specifications of the proposed wind turbines to allow for a wider turbine specification envelope that permits the new modern turbines models.

**Extended exploratory phase of the Table Mountain group aquifer feasibility study and pilot project, Western Cape, RSA: 2016-09 → 2017-09: EMPr Specialist**

Appointed by the City of Cape Town to compile specific EMPs for several exploratory borehole drilling operations (Diamond core drilling up to 70m depth) in several sensitive locations within the Cape Fold Mountain range.

**EA Amendment for the 96MW Wolf WEF EA amendment, Wolwefontein, Eastern Cape, RSA: 2016-04 → 2016-08: Project Leader:**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake a Part 2 amendment, in terms of the NEMA EIA Regulations, 2014, of an environmental Authorisation for the Wolf Wind Energy Facility near Wolwefontein in



the Eastern Cape. The Amendment centred on a change to the specifications of the proposed wind turbines, increase blade tip and increasing generation power.

**EIA for the Kupferberg general and hazardous landfill, Windhoek, Namibia: 2015-08 → 2019-02: Project Leader:**

Appointed by Jan Palm Consulting Engineers on behalf of the City of Windhoek to undertake an EIA for the proposed expansion of the Kupferberg Landfill site outside Windhoek, Namibia. The project aimed to increase the lifespan of the landfill by at least 20 years. The landfill provides for both hazardous and general waste cells and employs liner designs in accordance with the DWAF Minimum Standards for Disposal by Landfill, 2nd edition.

**Detailed EMPr for the 140MW Kangnas Wind Energy Facility, Springbok, Northern Cape, RSA: 2015-08 → 2015-10: Project Leader:**

Appointed by Mainstream Renewable Power RSA (Pty) Ltd to update the final EMPrs and layouts for the approved 140MW Kangnas Wind Energy Facility and associated Infrastructure as part of the project financial close ahead of construction for submission to DEA. Updating the EMPrs included the revision of the project description to reflect the go forward layout for each EMPr; inclusion specific conditions of the EAs including: Stormwater management plans; Traffic management plans; Bat and bird monitoring programmes; Rehabilitation / re-vegetation plans; Plant rescue and protection plans; Erosion management plan; Hazardous substances management plan; Measures to protect hydrological features on site; Environmental sensitivity map; and Layout map combined with the sensitivity map. Also include all monitoring requirements identified by the specialists / authorities; incorporate specific mitigation measures identified in the EIR into the EMPr project specification; arrange application for permits required under the Northern Cape Nature Conservation Act.

**Muxima shopping mall: 2015-06 → 2015-07 EMPr Specialist**

Appointed by SWB Comércio e Industria, Lda to develop an Environmental Management Programme and Stakeholder Engagement Plan for the proposed Muxima shopping mall located in the Precincto World Trade Centre Luanda, in Viana, Luanda. The project was conducted in accordance with the International Finance Corporation's (IFC) social and environmental requirements and the associated Performance Standards to allow for funding of the project.

**Constraints analysis for a Wind Farm near Volksrust in Mpumalanga: 2015-01 → 2015-03 Project Leader**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake an environmental constraints analysis of a potential site near Volksrust in Mpumalanga, to be considered for the development as Wind Energy Facility. Aurecon undertook a preliminary desktop assessment of the following areas: Heritage (archaeology and cultural heritage); Botany; Avifauna; Freshwater resources; Bats; and Agricultural potential.

**300MW Kronos Solar Park: 2015-03 → 2016-11: Project Leader**

Appointed by juwi Renewable Energies (Pty) Ltd to undertake three EIAs and two basic assessment in terms of NEMA for a proposed three 100MW phase solar PV facility with multiple transmission line connections options near Copperton in the Northern Cape.

**EIA for a 10M<sup>3</sup>/d Desalination Plant, Swakopmund, Namibia: 2014-07 → 2015-01 Project Leader**

Appointed by Rio Tinto Rössing Uranium Limited (RUL) to undertake a social and environmental impact assessment and develop a lifecycle social and environmental management plan for a proposed desalination plant located at the existing Mile 4 Salt works north of Swakopmund. The plant is designed to produce an average 8.2M<sup>3</sup>/d of water, which meets the Rössing Uranium Mine's current water demands and at a cost substantially less than that of the current water supply (the Areva desalination plant at Wlotzkasbaken)

**Wolf Wind Farm assessment, Eastern Cape Province, South Africa, Juwi Renewable Energies (Pty) Ltd, 08/2013 - 09/2015, Project Leader**

This project involved a proposed wind energy facility (WEF) and associated infrastructure, with a generation capacity of 80MW on farms near Wolwefontein in the Eastern Cape with 132 kV or 220 kV overhead transmission lines for transmission and distribution. Responsible for conducting an environmental impact assessment (EIA).



**Rössing Desalination Plant, Erongo region, Namibia, Rio Tinto Rössing Uranium Limited, 07/2014 - 03/2015, Project Leader**

This project consisted of a 10 Ml/d seawater desalination plant, north of Swakopmund to supply the water needs of Rössing Uranium Mine.

**Outeniqua Wind Farm, Western Cape Province, South Africa, Juwi Renewable Energies (Pty) Ltd, 03/2013 - 03/2015, Project Leader**

The project involves conducting an environmental impact assessment process in terms of the National Environmental Management Act for a 39 MW wind energy facility (WEF).

**450 MW Khanyisa coal fired power station, Mpumalanga Province, South Africa, AngloGold, 09/2010 - 01/2014, Consulting Team Member**

Compilation of construction and operations phase environmental management programmes (MP's) for a 450 MW coal-fired power station and associated infrastructure, including ash disposal dumps.

**Mineral exploration environmental management plan (EMP) for License Areas No 3450L and 3451L, Tete Province, Mozambique, Coal India Africana Limitada, 02/2012 - 04/2013, Consulting Team Member**

The project entailed the compilation of an environmental management plan (EMP) for mineral exploration drilling (diamond core and percussion drilling) in Licence Area no's 3450L and 3451L of the Moatize coal fields.

**Environmental and socio-economic impact assessment (ESIA) for a coal-fired power station, Erongo Region, Namibia, NamPower, 09/2011 - 04/2013, Consulting Team Member**

To meet the increasing power demands and reduce Namibia's dependency on South Africa for electricity, the Namibia Power Corporation (NamPower) proposed an increase in its electricity-generating capacity. The national peak is approximately 550 MW, of which a significant portion is imported, especially during the dry season. This is when the flow of the Kunene River is far below what is needed to operate the Ruacana Power Station on full base load. The proposed power station, Erongo, is set to contribute to the base load supply and assist in stabilising the grid under load and supply fluctuations. The project aimed to assess the impact of a 150/300/800 MW coal-fired power station with associated coal stockyard, an ash disposal facility and transport systems to deliver coal. This project aimed to investigate one of the alternative sites from the previous study in Walvis Bay and two new sites in the vicinity of Arandis, east of Swakopmund.

**Construction of a bulk water supply scheme to the town of Aussenkehr, Karas Region, Namibia, Namibian Water Corporation, 12/2011 - 03/2013, Consulting Team Member**

The project comprised the compilation of a life-cycle environmental management plan for the bulk water supply scheme for the town of Aussenkehr.

**Upgrading the Keurbooms pump station, abstraction works and rising main, Western Cape Province, South Africa, Bitou Municipality, 11/2009 - 12/2011, Environmental Control Officer (ECO)**

Appointed by the Bitou Municipality to compile an environmental management plan (EMP) associated with the proposed urgent upgrading of the Keurbooms Pumpstation, abstraction works and a 650 m length of 500 mm diameter steel rising raw water main. Responsible for compiling an EMP associated with the proposed urgent upgrading of the Keurbooms Pumpstation, abstraction works and a 650 m length of 500 mm diameter steel rising raw water.

**Mine life extension for Rössing Uranium Mine, Arandis, Namibia, Rio Tinto Rössing Uranium Mine Limited, 06/2007 - 12/2011, Consulting Team Member**

The project comprised the compilation of a social and environmental management plan (SEMP) for various activities associated with the life extension of Rössing Uranium Mine. This included the extension of the open pit operations, acid manufacturing plant, ore sorting plant, extended waste rock disposal areas, and tailings facilities, as well as a bulk sulphur handling facility in the port at Walvis Bay.

**Decommissioning of the Sonae Novobord fibreboard factory, Western Cape Province, South Africa, Sonae Novobord (Pty) Ltd, 06/2009 - 06/2011, Consulting Team Member**

Aurecon was appointed by the Sonae Novobord to compile an environmental management plan (EMP) and act as the environmental control officer (ECO) for the decommissioning of their factory in George Industria,



with a focus on the recovery and handling of salvageable materials and the lawful recovery and disposal of hazardous wastes and contaminated soil.

**Pipeline for reclamation of water from wastewater treatment works (WWTW), Western Cape Province, South Africa, Beaufort West Municipality, 02/2007 - 06/2011, Consulting Team Member**

Aurecon was appointed for the facilitation of the required environmental authorisation and waste licence for the upgrading of the wastewater treatment works in Merweville.

**15 MI/d Emergency desalination plant in Mossel Bay, Western Cape Province, South Africa, Mossel Bay Municipality, 05/2010 - 01/2011, Project Manager, Lead Consultant and Environmental Control Officer (ECO)**

Compilation of a Section 24G application in terms of the National Environmental Management Act for an emergency 15 MI/d seawater reverse osmosis plant as a result of more than 1:150 year drought situation in the Southern Cape, inclusive of a construction phase environmental management plan (EMP) and environmental control officer (ECO) services.

**New sulphuric acid storage tank at the Rössing Uranium Mine, Arandis, Erongo, Namibia, Rio Tinto Rössing Uranium Mine Limited, 02/2010 - 06/2010, Consulting Team Member**

Commissioned by Rössing Uranium to compile of a social and environmental management plan (SEMP) for the proposed new 15 Kt sulphuric acid storage tank located within the mine precinct.

**Social and environmental management for mineral exploration drilling plan, Arandis, Erongo, Namibia, Rio Tinto Rössing Uranium Mine Limited, 11/2008 - 04/2010, Consulting Team Member**

Commissioned by Rössing Uranium Limited to compile a social and environmental management plan (SEMP) for the proposed exploration drilling activities within the Namib-Naukluft Park and mine licence area.

**Creosote and CCA timber pole treatment facility, Groot Brak and Albertinia, South Africa, Outeniqua Pale (Pty) Ltd, 06/2007 - 03/2010, Consulting Team Member**

Responsible for assisting with an environmental impact assessment (EIA) for the decommissioning of an Outeniqua Pale Creosote and CCA pole treatment facility in Groot Brak and re-establishing it on a new site in Albertinia. Appointed by Outeniqua Pale (Pty) Ltd to compile of a construction, operation and decommission phase environmental management plan (EMP) for a Creosote and CCA pole treatment facility in conjunction with a basic assessment report (BAR).

**2 MI/d Emergency desalination plant in Plettenberg Bay, Western Cape Province, South Africa, Bitou Municipality, 12/2009, Lead Consultant and Environmental Control Officer (ECO)**

Compilation of a Section 24G application in terms of the National Environmental Management Act for an emergency 2 MI/d seawater reverse osmosis plant as a result of more than 1:150 year drought situation in the Southern Cape, inclusive of a construction phase environmental management plan and environmental control officer services.

**Social and environmental management plan for a bulk sulphur handling facility, Erongo, Namibia, Rio Tinto Rössing Uranium Mine Limited, 04/2008 - 12/2009, Consulting Team Member**

Commissioned by Rössing Uranium to compile of a social and environmental management plan (SEMP) for the proposed bulk sulphur importation, stockpiling and handling facility in the port of Walvis Bay.

**Emergency upgrading of Keurbooms rising main and pumps, Western Cape Province, South Africa, Bitou Municipality, 10/2009 - 11/2009, Lead Consultant**

Appointed by the Bitou Municipality to undertake an Emergency application for the upgrading of a 295 m section of perished pipeline, with 500 mm diameter steel pipe and the upgrading of pump impellers to increase abstractions from 100 l/s to 120 l/s out of the Keurbooms River. Responsible to compile an EMP and to function as the ECO for the Emergency application and subsequent upgrading of a 295 m section of perished pipeline, with 500 mm diameter steel pipe and the upgrading of pump impellers to achieve a greater abstraction rate.



**Upgrading of the Merweville wastewater treatment works (WWTW), Western Cape Province, South Africa, Beaufort West Municipality, 05/2009 - 10/2009, Project Manager and Lead Consultant**

Appointed by the Beaufort West Municipality to undertake waste license application involving the compilation of a basic assessment report and a construction, operation and decommissioning phase environmental management plan (EMP) for the upgrading of the Merweville wastewater treatment works (WWTW).

**Environmental and socio-economic impact assessment (ESEIA) for a proposed NamPower coal-fired power station at Walvis Bay, Erongo, Namibia, NamPower, 04/2008 - 08/2009, Consulting Team Member**

Responsible for acting as Lead Consultant on the ESEIA for the proposed NamPower coal-fired power station at Walvis Bay. This included a site screening and selection process, a scoping study, and an ESEIA, all supported by an environmental management plan (EMP).

**40 MI off-channel reservoir in Karatara, Western Cape Province, South Africa, Knysna Municipality, 04/2008 - 07/2009, Principle Environmental Consultant/Environmental Control Officer**

The project entailed the compilation of the construction phase environmental management plan (EMP) for a 40 000 m<sup>2</sup> off-channel reservoir, in-channel abstraction works, and associated pipe work. Responsible for acting as environmental control officer (ECO) to supervise the implementation of the environmental management plan (EMP), and undertake compliance monitoring and reporting.

**Independent review of environmental impact assessment (EIA) applications, Eastern Cape Province, South Africa, Department of Environmental Affairs and Tourism (DEAT), 01/2007 - 02/2009, Consulting Team Member**

Responsible for assisting with the review of various Section 22 EIA applications in terms of the Environmental Conservation Act (Act 73 of 1989) for the Department of Economic Affairs, Environment and Tourism (DEAET).

**Paratus emergency generation facility in Walvis Bay, Erongo, Namibia, NamPower, 04/2008 - 08/2008, Consulting Team Member**

Responsible for assisting with the environmental process management and compiling documentation in relation to a proposed 50 MW heavy fuel oil emergency generation facility located in the industrial port area.

**Review of the biodiversity components of municipal spatial development frameworks in the Cape domain, Western Cape Province, South Africa, South African National Biodiversity Institute (SANBI), 09/2007 - 06/2008, Consulting Team Member**

Aurecon was appointed to provide an overview of the requirements for biodiversity in SDF's, and an assessment of the current status of biodiversity in these SDF's, as well as to undertake the review as Phase I of a process to improve the input of biodiversity priorities in spatial planning documents and processes. Responsible for reviewing the first phase of a process to improve the input of biodiversity priorities in spatial planning documents and processes.

**Overhead power lines between Ha Lejone and the Liqhobong and Kao Diamond Mines, Lesotho, Liqhobong Mining Development Company and Kao Diamond Mine/Plantech Associates, 03/2007 - 02/2008, Consulting Team Member**

Responsible for assisting with the compilation of an environmental impact assessment (EIA) for a 38 km, 132 kV overhead power line and associated step-up and step-down substations.

**Timber treatment facility, Albertinia, South Africa, Outeniqua Pale (Pty) Ltd, 2008, Consulting Team Member**

The project was concerned with the compilation of a construction, operation and decommission phase environmental management plan (EMP) for a Creosote and CCA pole treatment facility in conjunction with a basic assessment report.

**Relocation of Sedgefield's water treatment and supply infrastructure, Western Cape Province, South Africa, Knysna Municipality, 08/2007 - 12/2007, Consulting Team Member**

The project consisted of a basic assessment report for the construction of a 4,5 MI water treatment works; a 1,8 km, 300 mm rising raw water pipeline; and the decommissioning and upgrading of the Ruigtevlei water treatment works into a pump station. Conduct a Basic Assessment process for the construction of a 4.5MI water treatment works, a 1,8 km, 300 mm rising raw water pipeline and the decommissioning and upgrading



of the Ruigtevlei water treatment works into a pump station. Compilation of the construction, operational and decommissioning phase EMP's for the construction of a 4,5 MI water treatment works, a 1,8 km, 300 mm rising raw water pipeline and the decommissioning and upgrading of the Ruigtevlei water treatment works into a pump station.

**Chemical storage and distribution facility in George, Western Cape Province, South Africa, Metsi Chem Ikapa (Pty) Ltd, 06/2007 - 11/2007, Consulting Team Member**

The project involved Section 24G retrospective applications for the authorisation of illegal activities relating to the storage of various hazardous chemicals used in the water purification industry, and the development of an associated operational phase environmental management plan (EMP) for incorporation into an ISO14001 environmental management system (EMS).

**Alien vegetation eradication and rehabilitation, Fancourt Estate, George, Western Cape, South Africa, Fancourt Golf and Country Estate, 05/2006 - 06/2007, Consulting Team Member**

Responsible for formulating an alien vegetation eradication and rehabilitation plan for Afromontane Forest for the estate's landholding on Malgas River.

**Berg water project, Franschhoek, Western Cape Province, South Africa, Trans-Caledon Tunnel Authority (TCTA), 03/2004 - 03/2007, Environmental Monitor**

The project entailed the construction of bulk water supply infrastructure to service the greater Cape Town metropolitan area which is comprised of the Berg River Dam, large diameter water transfer pipelines, two heavy duty pump stations, a scheme control centre, a balancing dam, several gauging weirs, a diversion weir, an asphalt access road, and an 80-unit residential village with associated bulk services. Responsible for construction supervision, environmental monitoring and reporting, review and assistance with construction method statements, monitoring health and safety aspects and legal compliance, as well as investigating and advising on internal and external entities with regard to environmental issues.

**Chemical storage facility, George, South Africa, Metsi Chem Ikapa (Pty) Ltd, 2007, Consulting Team Member**

This project involved Section 24G retrospective applications for the authorisation of illegal activities relating to the storage of various hazardous chemicals used in the water purification industry, and the development of an associated operational phase environmental management plan (EMP) for incorporation into an ISO14001 environmental management system (EMS).

**Keurbooms River raw water pipeline, Plettenberg Bay, South Africa, Bitou Municipality, 2007, Environmental Control Officer**

The project consisted of the provision of ad hoc environmental planning, routine audits, and compliance monitoring of the implementation of the environmental management plan (EMP) and ROD conditions of approval for the installation of a 9 km raw water pipeline and the rehabilitation of the construction servitude on completion.

**Relocation of Sedgefield's water treatment and supply infrastructure, Sedgefield, South Africa, Knysna Municipality, 2007, Consulting Team Member**

The project included the development of the construction, operational and decommissioning phase environmental management plans (EMP's) for the construction of a 4,5 MI water treatment works; a 1,8 km, 300 mm rising raw water pipeline; and the decommissioning and upgrading of the Ruigtevlei water treatment works into a pump station.

**Mine life extension for Rössing Uranium Mine, Arandis, Namibia, 2007, Consulting Team Member**

Responsible for assisting with the compilation of a social and environmental impact assessment (SEIA) for various activities associated with the life extension of Rössing Uranium Mine, including the extension of the open pit operations, the acid manufacturing plant, the ore sorting plant, extended waste rock disposal areas, and tailings facilities.





#### Qualifications

BTech Forestry

MPhil: Environmental Law

NDip Forestry

#### Professional registrations

Member, International Association for Impact Assessment South Africa (IAIASa)

#### Specialisation

Environmental assessments

# 32

years in industry



## Charles Norman

### Environmental Specialist

Charles is a principal environmental practitioner with nearly three decades' experience in environmental services. His technical proficiency and strategic thinking, along with his international environmental experience, place him in a strong position to advise environmental impact assessment (EIA) teams on the integration of technical pragmatism and due environmental processes. His extensive review experience has placed him in a key role mentoring environmental assessment practitioners within Aurecon and coordinating the advisory and delivery functions of projects.

He was the assistant project leader and technical coordinator for Vale's Moatize mine expansion and Nacala corridor EIAs in Mozambique and Malawi, where he managed a team of up to 80 practitioners, specialists and technical advisors. He has worked extensively in rural Africa and was based in Maputo during the implementation of the aforementioned projects.

He has carried out a variety of environmental assessments for a range of public and private sector projects locally and internationally, predominantly related to mining, infrastructure and manufacturing in Southern and East Africa. He also provides advice to in-house engineering teams and oversees the appointment and management of external EIA consultants when required.

In addition, he has extensive experience in environmental management, including soil and plant mapping, EIAs, environmental auditing and reviews. He spent a number of years with the Department of Environmental Affairs and Development Planning (DEA&DP), during which time he was responsible for reviewing and evaluating EIAs and appeals as well as advising the competent authority and the minister on law enforcement and environmental management matters.

Charles holds a Masters of Philosophy in Environmental Law from the University of Cape Town in South Africa. He also obtained a Bachelor of Technology in Forestry from the Port Elizabeth Technikon (now Nelson Mandela Metropolitan University) in 1999.

## Experience

### **Aga Khan Hospital Kampala, Kampala, Uganda, Aga Khan University Hospital (AKUH), 09/2016 - 06/2020, Reviewer**

Aga Khan University Hospital (AKUH) intends to develop a 600-bed hospital on a 60 acre site at the junction of Jinja and New Port Bell Rd in Nakawa, Kampala. The initial phase of the project known as the "Launch Phase" will be developed on a 7 – 10 acre portion of the site and will consist of a 50-bed hospital with an estimated 14 300 m<sup>2</sup> gross building area. In terms of the scope of works, the launch phase will consist of acute bed units; intensive care units; high-dependency units; surgical suites; imaging suites; cardiac catheterization ("cath") laboratory; as well as labour and delivery suites. Aurecon will be providing full engineering services including geotechnical; civil; structural; wet services; fire safety and protection; mechanical; electrical; electronic (ICT, fire detection, audio visual and security) and acoustics;

environmentally sustainable design (ESD) monitoring and management, provision of cost estimates and BOQs. Responsible for review of project reporting and liaison with sub-consultants.

**Environmental impact assessment for Penhill greenfields development project, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Human Settlements, 12/2016 - 06/2018, Project Leader**

The Department of Human Settlements is establishing a housing development to cater for approximately 8 000 units as part of the Southern Corridor initiative to upgrade informal settlements within the City of Cape Town. Aurecon was appointed to undertake an environmental impact assessment (EIA) for this greenfields housing development. Responsible as project leader.

**Design of Mizingani seawall and promenade, Phase IIA, Zanzibar City, Zanzibar, Tanzania Ministry of Finance, 12/2013 - 05/2018, Environmental Control Officer (ECO)**

The Revolutionary Government of Zanzibar (RGoZ), through its Zanzibar Urban Services Project (ZUSP), appointed Aurecon to lead a consortium of six consultancy companies for the design of the 340 m-long vertical seawall, with a 5 m-wide sea reclamation, along Mizingani Road. Based on design work completed under the Aga Khan Trust for Culture's (AKTC's) technical support, Aurecon's scope of work included detailed design of the seawall and promenade; the preparation of construction drawings, specifications, contract packages and tender documents; building condition assessment and review of the environmental and social management plan (ESMP). Responsible for auditing the site to ensure adequate implementation of environmental controls.

**Upgrading of DR1609 and portion of DR01625, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works, 12/2005 - 12/2017, Environmental Specialist**

Aurecon was appointed to undertake design and authorisation services for the upgrading of the DR1609 and a portion of DR01625 in Rondevlei, Western Cape, which is adjacent to the Garden Route National Park and crosses within a Ramsar protected wetland. The scope of works included the preparation of an environmental impact assessment (EIA). Responsible as project leader for the EIA component, including leading the compilation of the EIA and coordinating specialist inputs.

**Mossel Bay NUSP participatory based planning support, Western Cape Province, South Africa, Department of Human Settlement (DHS), 08/2015 - 11/2017, Environmental Specialist**

The National Department of Human Settlements appointed Aurecon to provide participatory based planning support for informal settlement upgrading in Mossel Bay Local Municipality via the National Upgrading Support Programme (NUSP). Aurecon's scope of works included the production of an assignment implementation plan, upgrading plans and sustainable livelihoods programmes for 18 settlements, community capacity building programme, and a skills transfer report. Responsible as project leader for the screening of environmental constraints and preparation of applicability checklists for the competent environmental authority.

**Upgrading of Plettenberg Bay Airport, Western Cape Province, South Africa, Bitou Local Municipality, 09/2016 - 06/2017, Environmental Specialist**

Bitou Municipality intends to upgrade the Plettenberg Bay Airport in the Western Cape Province, including adding additional infrastructure and hangars to comply with Civil Aviation Authority (CAA) regulations. Responsible for compilation of an environmental constraints analysis.

**Proposed hydropower station and associated infrastructure at Riemvasmaak, Northern Cape Province, South Africa, Riemvasmaak Hydro Electric Power (Pty) Ltd, 02/2012 - 06/2017, Technical Advisor**

Aurecon was appointed to provide the lead consultancy services for the environmental impact assessment (EIA) for the proposed 25 MW hydropower station at Riemvasmaak on the Orange River, adjacent to the Augrabies National Park. Responsible for providing advice on legal procedure and technical project aspects.

**Perdekraal East Wind Farm environmental and social due diligence (ESDD), Western Cape Province, South Africa, African Infrastructure Investment Managers (AIIM), 11/2016 - 04/2017, Project Leader**

In order to consider providing funding for the development of the Perdekraal East Wind Farm, the client required the undertaking of an environmental and social due diligence (ESDD) study, including an



environmental and social action plan (ESAP), to ensure that environmental authorisations in place were compliant with the requirements of the IFC. Responsible for the compilation of the ESDD and ESAP and coordination of specialist inputs.

**Curepipe Point wind farm assessment, Mauritius, Southern Energy Holdings, 05/2016 - 06/2016, Environmental Specialist**

Aurecon was appointed to undertake a fatal flaw review of a 29 MW wind energy development near the town of Curepipe in Mauritius. Responsible for the review of an environmental impact assessment (EIA) study as well as the identification and evaluation of environmental risks.

**Environmental and social impact assessment (ESIA) for the Makambako Wind Farm, Njombe Region, Tanzania, Windlab Limited, 11/2015 - 03/2017, Project Leader**

Windlab Tanzania SPV 1 Limited (Windlab) want to construct a wind farm and associated infrastructure, including a transmission line (project referred to as the Miombo Hewani Wind Farm) with a generation capacity of between 100 MW and 300 MW north of Makambako in the Njombe Region, Tanzania. Aurecon was appointed to undertake the requisite environmental process on behalf of Windlab as required in terms of the Environmental Management Act (Act 20 of 2004) (EMA). Responsible for leading the team of specialists and sub-consultants to develop an IFC compliant ESIA.

**Working for Wetlands Plan 2014 - 2017, National, South Africa, South African National Biodiversity Institute (SANBI), 06/2013 - 09/2016, Environmental Advisor**

Aurecon was appointed in 2010 for a three year cycle for the design, planning, environmental, project and risk management of the South African Government's Working for Wetlands Programme, which is a nationally run initiative by the South African National Biodiversity Institute (SANBI). The programme's objective is to rehabilitate damaged wetlands and to protect wetlands throughout South Africa, with an emphasis on complying with the with an emphasis on complying with the principles of the expanded public works programme (EPWP) through employing only local small, medium and micro enterprises (SMMEs). Responsible for a review and giving advice on legal process requirements.

**Environmental impact assessment (EIA) for the Mtwara super base, Mtwara Region, Tanzania, Schlumberger Seaco Inc, 01/2015 - 06/2016, Project Leader**

Schlumberger wished to construct a super base within the Export Processing Zone (EPZ) in Mtwara to serve all land and offshore operations in the region. Aurecon was appointed to undertake the environmental impact assessment (EIA). Responsible for client liaison and coordination of sub-consultants as well as review.

**Kinangop Wind Farm Phase 1A status review and risk assessment, Nakuru, Kenya, Kinangop Wind Park, 11/2015 - 03/2016, Environmental Specialist**

Following termination of the engineering, procurement and construction (EPC) contract, Aurecon was appointed to assess the project status and risks associated with remobilising the Kinangop Wind Farm project. Responsible for environmental review.

**Pre-feasibility study for Rukwa coal-to-power project, Mbeya, Tanzania, Rukwa Development Company, 11/2014 - 09/2015, Team Member**

Aurecon was engaged by Kibo Mining to carry out a pre-feasibility study for a coal-fired power station to be located adjacent to an opencast coal mine in the Rukwa region of Tanzania. The study included preliminary environmental assessments of the power station and the mine, power evacuation assessment, power station design and modelling of various configurations, reporting and technical input to the project financial model. Responsible for contributing to the drafting of an environmental and social prefeasibility study.

**Project information memoranda (PIM) for Mtwara Port and the Mtwara/Mikindani municipal master plan, Mtwara Region, Tanzania, Development Bank of Southern Africa (DBSA), 08/2014 - 09/2015, Environmental Process Advisor**

The project entailed the development of project information memoranda (PIM) for Mtwara Port, which entailed a review of the Mtwara Port feasibility study of 2012 and other related material that would assist in the preparation of a bankable PIM. The project also involved the development of the Mtwara/Mikindani detailed municipal land use master plan to collect baseline spatial data that can assist in understanding the growth



projections for the city and proposing suitable physical and social infrastructure and land uses to accommodate the growth. Responsible for liaising with the authority, coordination of sub-consultants and review.

**Environmental impact assessment (EIA) for the construction of the AfriSam cement factory, Western Cape Province, South Africa, AfriSam South Africa (Pty) Ltd, 02/2011 - 09/2015, Project Leader**

AfriSam was looking to enter the Western Cape market, and consequently decided to fund the construction of a cement factory and associated infrastructure. Aurecon was appointed to undertake an environmental impact assessment (EIA) process for the cement plant, mine and associated infrastructure located on Farm 1139 in the Saldanha industrial area. Services involved undertaking and managing the EIA process, traffic impact study (TIS), surface water investigation and social impact assessment (SIA). Responsible for project management, client and authority liaison, coordination of technical information and specialists inputs, management of public processes, EIA and compilation of an environmental management plan (EMP) report.

**Environmental screening of a potential wind energy site, Tanzania, Windlab Limited, 02/2015 - 04/2015, Project Leader/Technical Coordinator**

Aurecon was appointed to determine the feasibility of establishing a wind energy facility (WEF) in Tanzania. As part of evaluation Aurecon was appointed to undertake a comparative environmental constraints analysis, including the biophysical, social and heritage aspects of the identified sites. Responsible for the identification and assessment of environmental constraints.

**Western Cape road materials supply strategy, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works (DTPW), 06/2008 - 03/2015, Principal Environmental Practitioner**

Increasing pressures from tightened environmental legislation have resulted in lengthy waiting periods (about 18 months) for identifying required material sources. The wait is also caused by investigation phases, getting approval from the Mineral Resources and Petroleum Development Act (DMR), the Department of Environmental Affairs and Development Planning (DEADP), the National Environmental Management Act (NEMA) and the Land Use Planning Ordinance (LUPO). Aurecon was responsible for prospecting suitable road making materials, sampling, testing, and identifying technically suitable sources to be used for both identified projects and as strategic pits, as well as for getting all the required approvals. Responsible for planning of authorisation processes and review of submissions. Also responsible for liaison with authorities and partner consultants.

**Upgrading of Distillery Road in Wellington, Western Cape Province, South Africa, Drakenstein Local Municipality, 10/2013 - 02/2015, Project Manager**

The project entailed a basic environmental impact assessment (EIA) for the proposed upgrading of Distillery Road in Wellington, including a heritage assessment. Responsible for project management, client and authority liaison, coordination of specialist input and review of final reports.

**George mobility strategy for the improvement of public transport, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works (DTPW), 09/2003 - 02/2015, Consulting Team Member**

This broad based mobility strategy project, which is centred on the improvement of public transport in the George municipal area, is one of many national interventions to upgrade public transport in South Africa. The objective is the transformation of the existing bus and minibus taxi industry into a single entity contracted to the local authority to provide scheduled, subsidised public transport services. Work has included detailed operational design and costing; contract development as well as planning for the upgrading of road and other infrastructure, including a bus stop, a temporary bus depot, and an inter-urban bus station. The project has also comprised a considerable amount of engagement with the local bus and minibus industry representatives as well as broad based public consultation. Responsible for the advisory role on environmental constraints for implementation of public transport initiative.



**Feasibility study for the Knysna-Bitou water supply scheme, Western Cape Province, South Africa, Eden District Municipality, 01/2013 - 12/2014, Project Member**

The project involved the identification of the water resource and bulk water requirements of the local municipalities of Knysna and Bitou for the next 20 years and exploring the technical and economic viability of integrating the bulk water supply systems serving the towns of Knysna and Plettenberg Bay. Responsible for the identification and evaluation of environmental constraints for the screening of options exercise.

**Environmental constraints analysis of potential wind energy sites near Aberdeen, Eastern Cape Province, South Africa, Juwi Renewable Energies (Pty) Ltd, 06/2013 - 08/2014, Project Leader/Technical Coordinator**

The client wished to determine the feasibility of establishing a wind energy facility at Aberdeen in the Eastern Cape. As part of evaluation Aurecon was appointed to undertake a comparative environmental constraints analysis, including the biophysical, social and heritage aspects of the identified sites. Responsible for contributing to identification and assessment of environmental constraints. Also responsible for constraints identification and evaluation as well as a review.

**Water augmentation study for the Bitou Local Municipality, Western Cape Province, South Africa, Bitou Local Municipality, 10/2009 - 03/2014, Environmental Scientist**

The Wadrif 1E Dam scheme was for the augmentation of the bulk water supply to the Plettenberg Bay area. Aurecon's project scope focused on the Wadrif 1E off-channel dam and included a basic assessment process for an emergency pipeline and the remainder of the pipeline in terms of the relevant environmental legislation. An application for a licence to store was made in terms of the National Water Act, 1997 (NWA) and a forestry permit application for a drilling site investigation for the Wadrif 1E Dam site and for dam construction. Responsible for the management of specialist environmental impact assessment (EIA) consultant and review of all reports.

**Independent review of environmental impact assessment (EIA) applications, Western Cape Province, South Africa, Department of Environmental Affairs and Development Planning (DEA&DP), 03/2011 - 12/2013, Task Leader**

The purpose of the project was to review contentious environmental impact assessment (EIA) applications in terms of the National Environmental Management Act 107 of 1998 (NEMA) to support authority decision making. Responsible for project management, client liaison, advisory role to team members and review and coordination of final products.

**Pilot catchment management plan: Kyoga water management zone, Kampala, Uganda, The World Bank, 12/2012 - 12/2013, Co-author of report**

Aurecon was appointed to prepare a pilot catchment management plan (CMP) for the Awoja Catchment. Major social and environmental issues within the catchment area were identified early in the process as critical informants to catchment management planning so these can be integrated into the planning process at an early stage. The rapid strategic environmental assessment (RSEA) focussed on identifying the issues and conditions in the catchment related to water and natural resources that are likely to be a major influence and that might represent important risks, as linked to potential water resource development options. Responsible for contributing to the coordination of and reporting on implementation options.

**Update to rapid strategic environmental assessment (RSEA): development of a pilot catchment management plan (CMP), Kampala and Mbale, Uganda, Ministry of Water and Environment (Uganda), 12/2012 - 11/2013, Project Member**

This water management and development project (WMDP) for Uganda comprised the development of a pilot catchment management plan (CMP) in the Kyoga water management zone (WMZ). The CMP outlines the changes required and the benefits of these changes towards ensuring sustainable development and the equitable distribution of the resulting benefits. The integrated water resources management-based (IWRM-based) CMP provides an integrated strategy for the sustainable water resource management in the pilot Kyoga WMZ catchment. Responsible for the coordination of and reporting on implementation options.



**Operational environmental management plan (EMP) for Shoprite Checkers, Western Cape Province, South Africa, Shoprite Checkers, 04/2010 - 07/2013, Task Leader**

The project included the compilation of an operational environmental management plan (EMP) to meet the local municipality's requirements for the new shopping centre at Sandown Road in Cape Town. Responsible for project management, client and authority liaison and the compilation of EMP report.

**Environmental impact assessment (EIA) for the Riemvasmaak Hydropower Station, Northern Cape Province, South Africa, Mulilo Renewable Energy (Pty) Ltd (MRE), 12/2011 - 06/2013, Technical Advisor**

Aurecon was appointed to submit a proposal to undertake an environmental impact assessment (EIA) for the construction of a hydropower station on the Riemvasmaak Farm north of Augrabies Falls National Park. Services provided included legislation and policy review, strategic review, public consultation, EIA coordination and facilitation and various specialist disciplines. Responsible for providing advice on the legal procedure and technical project aspects.

**Exploratory drilling environmental management plan (EMP), Tete Province, Mozambique, Coal India Africana Limitada (CIAL), 02/2012 - 04/2013, Project Leader**

The project entailed the compilation of an environmental management plan (EMP) for exploratory drilling operations for coal prospecting in Moatize. Responsible for client liaison, project management, coordination of team members and review of final products.

**Environmental management plans (EMPs) for coal bed methane prospecting activities, Tete Province, Mozambique, Rio Tinto Coal Mozambique (RTCM), 07/2012 - 02/2013, Project Member**

Aurecon was appointed by Rio Tinto to compile the environmental management plan (EMP) for the coal bed methane (CBM) prospecting activities in each of the lease areas, ensuring the necessary licensing of the activities. Responsible for project management, coordination of information and team inputs.

**Social and environmental impact assessment (SEIA) for the Rössing Uranium Mine expansion project, Erongo Region, Namibia, Rössing Uranium Mine, 09/2009 - 08/2012, Project Member**

Rössing Uranium wanted to obtain environmental authorisations for the expansion of the mine to increase production and extend the life of the mine. Aurecon undertook a social and environmental impact assessment (SEIA) to determine the environmental impacts brought about by the proposed activities, proposed measures to minimise detrimental impacts or enhance positive impacts and presented the findings to the Namibian authorities. The SEIA included two primary product deliverables, namely the environmental scoping report (ESR) and the subsequent SEIA report. Responsible for providing support to the team appointed to facilitate the required environmental authorisations for the expansion of the Rössing Uranium Mine, including the review of legislative requirements and specialist reports.

**Bankable feasibility study (BFS) for a Zuma Energy project, Kogi State, Nigeria, Zuma Energy Nigeria Limited, 10/2011 - 01/2012, Project Leader**

Zuma Energy Nigeria Ltd was planning to construct and operate a 1 200 MW coal-fired power station along the Niger River. Aurecon prepared a bankable feasibility study (BFS) using a gap analysis of all existing documents and work already done by Zuma Energy. The study included a review of the environmental and social issues by conducting an environmental and social impact assessment (ESIA) to determine adequacy and compliance to the Nigerian Statutory requirements and the World Bank's standard Equator Principles (EPs) and to a level suitable for financial closure. Responsible for the review of final report against World Bank standards and EPs.

**Independent review of environmental impact assessment (EIA) for report, KwaZulu-Natal Province, South Africa, Knight Piésold, 11/2011 - 12/2011, Consulting Team Member**

The purpose of the project was to review the environmental impact assessment (EIA) process undertaken by Knight Piésold for a bulk water supply pipeline in KwaZulu-Natal. Responsible for the review of impact assessment methodology.



**Pre-feasibility study on the Great Lakes Railway, Burundi, Rwanda, Tanzania, Uganda and Zambia, Common Market for Eastern and Southern Africa (COMESA), 03/2010 - 12/2011, Consulting Team Member**

The project entailed a pre-feasibility study to improve port, inland waterway and rail inter-connectivity in the Great Lakes Region (Lake Kivu, Lake Edward, Lake Tanganyika, Lake Victoria and Lake Albert) based on several transportation constraints experienced. The primary objective was reduced transportation costs for the provision of rail links to connect existing rail networks with each other, and the development of the inland water transport services across lakes within the region. The work included a pre-feasibility study that consisted of resource mapping, traffic forecasts, alignment surveys, engineering cost estimates, an environmental impact assessment (EIA), institutional review, financing mechanisms review and economic evaluation and feasibility study. Responsible for authority consultation, site inspection and review of proposed rail alignments and reporting on environmental constraints.

**Application for an atmospheric emissions licence (AEL) in Albertinia, Western Cape Province, South Africa, South Cape Poles, 03/2007 - 11/2011, Task Leader**

The project entailed facilitating an application for an atmospheric emissions licence (AEL) in terms of the National Environment Management (NEM): Air Quality Act (No 39 of 2004) for the operation of a creosote treatment facility in Albertinia. Responsible for project management, client and authority liaison, coordination of specialist inputs and final report compilation.

**Environmental impact assessment (EIA) for the Moatize Coal Mine expansion, Tete Province, Mozambique, Vale Moçambique Limitada, 03/2010 - 09/2011, Assistant Project Leader**

The aim of the project was to expand operations at Moatize Coal Mine due to the favourable global market for coal. Aurecon was appointed to undertake separate environmental impact assessments (EIAs) for each of the proposed components of the project. The particular work plan addressed EIA Package 1, which was for the proposed expansion of the mine at Moatize and related infrastructure. Responsible for client and specialist liaison, coordination of technical information and review of final reporting.

**Environmental impact assessment (EIA) for the Nacala Rail Corridor, Malawi and Mozambique, Vale Moçambique Limitada, 03/2010 - 09/2011, Project Member**

The project entailed the completion of four environmental impact assessments (EIAs) for the upgrading of existing and the construction of new railway sections along the Nacala Corridor from the Moatize Coal Mine in Mozambique, through Malawi, to the Port of Nacala, and a new coal handling terminal. This particular work plan addressed Packages 2 to 5, which were for the components of the Nacala Logistics Corridor. Responsible for client and specialist liaison, coordination of technical information and review of final reporting.

**Decommissioning of the Sonae Novobord board manufacturing plant in George, Western Cape Province, South Africa, Sonae Novobord, 07/2009 - 07/2011, Project Leader/Manager**

Aurecon was appointed to prepare an environmental management plan (EMP) for the decommissioning of Sonae Novobord's board manufacturing and veneering plant in George. Responsible for project management, client and authority liaison and review of the final EMP report.

**Upgrading of Merweville wastewater treatment works (WWTW), Western Cape Province, South Africa, Beaufort West Local Municipality, 02/2007 - 06/2011, Project Manager**

The project entailed the facilitation of the required environmental authorisation and waste licence for the upgrading of the wastewater treatment works (WWTW) in Merweville. Responsible for project management, review of final reports.

**Emergency desalination plant for Mossel Bay, Western Cape Province, South Africa, Mossel Bay Local Municipality, 05/2010 - 01/2011, Environmental Assessment Practitioner**

The Mossel Bay Local Municipality appointed Aurecon to undertake an environmental impact assessment (EIA), which is required by Act 107 of 1998 of the National Environmental Management Act (NEMA), to assess the potential impacts related to the construction and operation of a 15MI/day emergency desalination plant in the Voorbaai area. Aurecon was responsible for consultation with the authorities throughout the EIA to confirm that all potential issues were identified; for the compilation of a report that provided a detailed description of the potential impacts associated with the development, and the findings; an evaluation of the potential impacts;



and recommendations regarding mitigation and the way forward. Responsible for project management, review of EIA and environmental management plan (EMP) reports.

**Environmental impact assessment (EIA) for infrastructure upgrades at the Etosha National Park, Oshikoto Region, Namibia, Millennium Challenge Account (MCA), 04/2010 - 11/2010, Consulting Team Member**

The project entailed the completion of two environmental impact assessments (EIAs), including environmental management plans (EMPs), for the construction of staff housing and management centres at the Ombika and Galton gates as well as the Okaukuejo and Otjovasandu villages in the Etosha National Park. The aim was to improve the quality of infrastructure to attract senior management to the park to ensure that the park retains its status as a premier tourist destination. Responsible for the review of specialist reports and final reporting.

**Pre-feasibility (FEL 2) social and environmental screening of rail corridor alternatives through Malawi, Southern Region, Malawi, Vale Moçambique Limitada, 09/2009 - 09/2010, Principal Environmental Practitioner**

The project involved a pre-feasibility (FEL 2) level investigation into alternative routes for the proposed railway alignment section between Moatize in Mozambique and the Nkaya Junction in Malawi. Aurecon prepared the social and environmental screening report, which provided a background to the methodology for environmental (social and biophysical) screening. A high-level impact study and comparative assessment of alternative alignments were undertaken to determine the most environmentally responsible and sustainable options. Responsible for gathering field data and contribution to the screening report.

**Independent review of environmental impact assessment (EIA) applications for the Department of Economic Development, Environment and Tourism, Eastern Cape Province, South Africa, Department of Economic Development, Environmental Affairs and Tourism, 02/2007 - 07/2010, Project Manager**

The project entailed the review of environmental impact assessment (EIA) applications to assist with the processing of backlog applications in terms of the Environment Conservation Act (Act 73 of 1989) (Cacadu Region). Responsible for project management, liaison with authorities and applicants, advising authorities on fatal flaws and policy conflicts, drafting environmental authorisations and training authority staff.

**Relocation of the Sedgefield water treatment works (WTW) and associated infrastructure, Western Cape Province, South Africa, Knysna Local Municipality, 12/2004 - 06/2010, Project Manager**

The purpose of the project was to undertake an environmental impact assessment (EIA) to facilitate the relocation of the Sedgefield water treatment works (WTW) out of a floodplain. Responsible for managing the basic assessment reporting procedure for the relocation. Also responsible for project management, client liaison and the identification and assessment of impacts.

**Independent review of environmental impact assessment (EIA) applications for the Department of Environmental Affairs and Development Planning (DEA&DP), Western Cape Province, South Africa, Department of Environmental Affairs and Development Planning (DEA&DP), 04/2009 - 05/2010, Project Leader**

The project entailed the review of environmental impact assessment (EIA) applications and appeals to assist the competent authority with the processing of backlog applications in terms of the Environment Conservation Act (Act 73 of 1989) and the National Environmental Management Act 107 of 1998 (NEMA). Responsible for project management, client liaison, staff advisory and review of all final submissions.

**Decommissioning of creosote treatment facility at Tergniet, Western Cape Province, South Africa, Outeniqua Pale (Pty) Ltd, 06/2007 - 04/2010, Project Manager**

Aurecon was appointed to facilitate the relocation of Outeniqua Pale's timber treatment works, including a waste licence for the decommissioning of a site contaminated with hazardous waste and the drafting of an environmental and health impact assessment (EHIA) on instruction from the Environmental Management Inspectorate (EMI). Responsible for project management, client and authority liaison, advising legal representatives, managing public process and the compilation of the final EHIA and environmental management plan (EMP) reports.





**Environmental management plan (EMP) for Garden Route Casino, Western Cape Province, South Africa, Garden Route Casino (Pty) Ltd, 12/2008 - 04/2010, Project Leader**

Aurecon was appointed to update the environmental management plan (EMP) to accommodate various proposed upgrades to the casino and associated facilities. Responsible for project management, client and authority liaison and review of the final report.

**Upgrading of creosote treatment facility at Albertinia, Western Cape Province, South Africa, Outeniqua Pale (Pty) Ltd, 05/2008 - 02/2010, Project Leader**

The purpose of the project was to facilitate the upgrading of an unlicensed timber treatment works, including the formulation of environmental management plans (EMPs), at Albertinia, Western Cape. Responsible for project management, client and authority liaison, coordination of specialist input, impact assessment and, advising the client's legal representatives.

**Upgrading of the Outeniqua effluent pump station and pipeline, Western Cape Province, South Africa, George Local Municipality, 09/2009 - 08/2010, Project Member**

The growth of the residential sectors in George necessitated the upgrading of the existing regional wastewater treatment works (WWTW). Aurecon was appointed for the design, tender compilation and contract supervision for the upgrading of the plant from a capacity of 9.3 Ml/day to 15 Ml/day. The upgrade included the addition of more aerators to the bioreactor, a dissolved air flotation (DAF) unit and a sludge digester. Responsible for managing an application for amendment to an existing authorisation and facilitating the public process.

**Upgrading of Hartenbos wastewater treatment works (WWTW), Western Cape Province, South Africa, Mossel Bay Local Municipality, 04/2009 - 07/2009, Project Leader**

Aurecon was appointed to facilitate the requisite environmental process for the upgrading of the wastewater treatment works (WWTW) in Hartenbos. Responsible for project management, client and authority liaison and review of the final reports.

**Environmental processes for the Beaufort West wastewater reclamation plant, Western Cape Province, South Africa, Water & Wastewater Engineering, 10/2008 - 07/2009, Project Manager**

The purpose of the project was to facilitate the requisite environmental processes for the implementation of a wastewater reclamation plant for Beaufort West Municipality, inclusive of a waste licence and environmental authorisation. Responsible for project management, client and authority liaison, management of specialists and public processes and the compilation of final reports.

**Alien vegetation eradication and rehabilitation, Fancourt Estate, George, Western Cape Province, South Africa, Fancourt Golf and Country Estate, 2008, Project Manager**

The project entailed the formulation of an alien vegetation eradication and rehabilitation plan for the Fancourt landholding on the Malgas River. Responsible for project management, client liaison and report compilation.

**Review of the biodiversity components of municipal spatial development frameworks (SDFs) in the C.A.P.E. domain, Western Cape Province, South Africa, South African National Biodiversity Institute (SANBI), 2008, Consulting Team Member**

The aim of the project was to provide an overview of the requirements for biodiversity in spatial development frameworks (SDFs), and an assessment of the current status of biodiversity in these SDFs. Responsible for the review of SDFs and final reports.

**Additional units at the open cycle gas turbine (OCGT) plant in Mossel Bay, Western Cape Province, South Africa, Eskom, 01/2005 - 01/2006, Consulting Team Member**

The project entailed the management of a comprehensive and multi-disciplinary environmental impact assessment (EIA) process for three additional gas turbine units at the peaking generation power plant in Mossel Bay. Responsible for project management assistance, liaison with specialists and report review.



**Review of environmental impact assessment (EIA) applications and appeals, South Africa, Provincial Department of Environmental Affairs and Development Planning (DEA&DP), 2004 - 2006, Principal Environmental Officer**

The project entailed reviewing environmental impact assessment (EIA) applications and appeals and drafting environmental authorisations. Responsible for reviewing EIA applications, advisory role to competent authority and the drafting of environmental authorisations.

**Assessment of plantation plans, George, Western Cape Province, South Africa, Woodfield Farm, 2004, Consultant**

The project entailed the evaluation of Woodfield Farm's existing management plans and making recommendations for optimising forestry operations.

**Proprietor of Southern Cape environmental services, Western Cape Province, South Africa, 1992 - 2004, Consultant**

The project entailed the compilation of a number of environmental management plans (EMPs) and environmental assessments and evaluations for a variety of developments in the Southern Cape. This included the mapping of soils of various Southern Cape forestry plantations and indigenous forests for the Council for Scientific and Industrial Research (CSIR), South African Forestry Company Ltd (SAFCOL), the Department of Water and Sanitation (DWS) and private companies, for productivity and planning purposes as well as the sampling of river water for analysis by Stellenbosch University: Department of Soil Science. Responsible for financial management, project management, report compilation and client liaison.

**Plantation environmental auditing, Western Cape Province, South Africa, NCT Forestry Co-operative Limited (NCT), 2003, Consultant**

The project entailed the auditing of Van Reenen plantations for compliance with Forestry Stewardship Council (FSC) requirements. Responsible for environmental auditing.

**Alien vegetation mapping, Western Cape Province, South Africa, EnviroGIS, 2001 - 2003, Consulting Team Member**

Appointed to map and quantify alien vegetation status in the Barrydale, Botvlei, Kamanassi and Karatara catchments.

**Western Cape forestry land use study, Western Cape Province, South Africa, Department of Water and Sanitation (DWS), 2001, Project Manager**

Appointed and commissioned by Department of International Development (DFID) as project leader and co-author to conduct a study on the Western Cape land forestry land use.

**Mapping of soils for forest planning, Western Cape Province, South Africa, Department of Water and Sanitation (DWS), 1988 - 1992, Consulting Team Member**

As part of a function while employed at the Council for Scientific and Industrial Research (CSIR), mapped extensive soil bodies within the Southern Cape catchments for productivity evaluation and species choice. Responsible for mapping soil bodies.



## Qualifications

Aquaculture Certificate

MTech Nature Conservation

BTech Nature Conservation

NDip Nature Conservation

## Professional registrations

Professional Scientist, South African Council for Natural Scientific Professions (SACNSP)

Member, International Association for Impact Assessment South Africa (IAIASa)

## Specialisation

Environmental management, impact assessments and regulations

6

years in industry

# Wynand Loftus

## Senior Consultant



Wynand is an environmental scientist with more than five years' experience in environmental science, including environmental management, environmental impact assessments (EIAs), and environmental regulatory compliance. He has been involved in a range of projects across South Africa, including EIAs for municipal civil infrastructure and housing, renewable energy developments and environmental auditing and compliance monitoring.

He is experienced in managing full EIA processes, including, amongst others, in compiling cost proposals for environmental advisory services; client interaction; budget management; conducting public participation processes (PPPs); compiling project reports such as EIA reports and environmental management programmes (EMPrs); and compiling of environmental maps in ArcView GIS.

Wynand is also an experienced environmental control officer (ECO), with expertise in, amongst others, auditing and monitoring environmental compliance on site, compiling environmental audit reports, and conducting environmental induction training with contractors.

He obtained a Master of Technology in Nature Conservation in 2013 and a Bachelor of Technology in 2011, both from the Nelson Mandela Metropolitan University (NMMU) in South Africa. He is registered as a professional scientist with the South African Council for Natural Scientific Professions (SACNASP) in is a member of the International Association for Impact Assessment South Africa (IAIASa).

## Experience

### **Nuweveld wind farms, Western Cape Province, South Africa, Red Cap Energy (Pty) Ltd (Red Cap), 03/2019 - 12/2021, Senior Consultant to Project Manager**

Aurecon has been appointed to facilitate three environmental impact assessments (EIAs) for the proposed Nuweveld wind farms, and to undertake one basic assessment (BA) process for an approximately 120 km gridline connection. Responsible for assisting the project manager with all delivery related tasks, including compiling reports, conducting site inspections, and managing spatial data.

### **Environmental advisory services to the Mossel Bay Local Municipality, Western Cape Province, South Africa, Mossel Bay Local Municipality, 01/2019 - 06/2021, Senior Consultant**

Aurecon was appointed on a municipal panel to provide environmental advisory services, including environmental impact assessments (EIAs), basic assessments (BAs) and environmental management programmes (EMPrs). Responsible for compiling and submitting an environmental applicability checklist

to the local environmental, competent authority. Also responsible for facilitating the BA and EIA processes.

**Environmental advisory services to George Local Municipality, Western Cape Province, South Africa, George Local Municipality, 02/2019 - 02/2021, Senior Consultant**

Aurecon was appointed to carry out the basic assessment (BA) environmental process for remedial works along Rooidraai Road in Herolds Bay. Responsible for compiling basic assessment reports (BARs), the public participation process (PPP), and the application form. Duties include corresponding with and managing environmental specialists and liaising with environmental competent authority.

**Materials supply for gravel roads, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works (DTPW), 02/2015 - 02/2020, Senior Consultant/Environmental Control Officer (ECO)**

Aurecon has been appointed to assist with the material supply and planning, design and control aspects for the maintenance of gravel roads in the Central Karoo and Eden District Municipalities. Services include engineering geology, environmental studies, materials source identification and project management. The contract primarily entails locating and proving suitable material sources for the re-gravelling of 300 km and maintenance activities of 45 000 km of all gravel roads in the two identified district municipalities. Obtaining approval for the use of material sources was a challenge due to the associated environmental and legal aspects, where legal approval was required from the Department of Mineral Resources (DMR) and from the Department of Environmental Affairs and Development Planning (DEADP). Responsible for carrying out basic assessment (BA) processes to apply for environmental authorisation and mining permits from the DMR. The BA included all relevant authority correspondence and public participation processes (PPPs). Also responsible for carrying out environmental control officer (ECO) duties at various borrow pits throughout the Garden Route and Central Karoo District Municipalities, including site inspections, compiling monthly ECO reports, monitoring mining activities, and corresponding with the two district municipalities.

**Mossel Bay Upgrading of Informal Settlements Programme (UISP), Western Cape Province, South Africa, Mossel Bay Local Municipality, 01/2017 - 12/2019, Senior Consultant**

Aurecon was appointed to provide project management services for informal settlement upgrading in the Mossel Bay Local Municipality via the UISP, as a follow on to the National Upgrading Support Programme (NUSP). Aurecon's scope of works included the project planning, procurement of requisite planning and environmental permissions and implementation oversight for 22 informal settlements. Responsible for coordinating environmental processes and project management, including four Section 24G processes and one amendment application, facilitating specialist inputs and assessments, and corresponding and interacting with relevant organs of state and authorities.

**Basic assessment (BA) for the Koeris Wind Energy Facility (WEF) temporary fuel storage facility, Northern Cape Province, South Africa, Mainstream Renewable Power, 10/2018 - 10/2019, Senior Consultant**

Aurecon was appointed to facilitate the requisite basic assessment (BA) environmental process for the construction of a temporary fuel storage facility for the construction period of the Koeris Wind Energy Facility (WEF) in Springbok. Responsible for carrying out the full BA process, including compiling a basic assessment report (BAR) and environmental management programme (EMPr), conducting a full public participation process (PPP) and carrying out all project management related duties.

**Environmental planning and compliance for the Working for Wetlands Programme 2017-2019, National, South Africa, Department of Environmental Affairs (DEA), 11/2016 - 06/2019, Senior Consultant**

Aurecon, in association with GroundTruth, was appointed to undertake the planning and approval processes for the Working for Wetlands Programme for the period 2017-2019. The programme has been mandated to rehabilitate damaged wetlands and to protect pristine wetlands. The methodology followed constitutes three phases. The coarse-scale planning (Phase 1) entails the identification of degraded wetlands for rehabilitation purposes; the detailed planning (Phase 2) is for the identification and design of rehabilitation interventions and obtaining environmental authorisations in terms of the National Environmental Management Act no 107 of 1998 (NEMA) and Phase 3, the provision of implementation support, includes setting out and signing off constructed interventions and monitoring and evaluating wetland rehabilitation projects. Responsible for the



compilation of basic assessment reports (BARs), the public participation process (PPP) and application form as well as conducting site inspections.

**Environmental audit for the Garden Route Casino, Western Cape Province, South Africa, Garden Route Casino, 07/2018 - 06/2019, Senior Consultant**

The project involved providing environmental advisory services and the complete requisite environmental audit for the Garden Route Casino and determining the best way forward for the casino to comply with its responsibilities. Responsible for correspondence with the local environmental competent authority regarding the regulatory environmental audit requirements applicable to the Garden Route Casino. Also responsible for carrying out the environmental audit, compiling an audit report and submitting the report to the competent authority.

**Environmental impact assessment (EIA) for the extension of ashing facilities at Kriel Power Station, Mpumalanga Province, South Africa, Eskom, 08/2016 - 11/2017, Senior Consultant**

Aurecon was appointed to undertake an environmental impact assessment (EIA) for the extension of an ash dam facility at the Kriel Power Station. The EIA was postponed after the scoping phase was completed in 2011 due to further geotechnical investigation being required for the preferred site. In 2016, Aurecon's appointment was amended to allow for a new EIA process to be undertaken in terms of the latest environmental legislation. Responsible for comparing 2014 National Environmental Management Act (NEMA) EIA regulations with the amended 2017 NEMA EIA Regulations and listing similarly listed activities.

**Environmental impact assessment (EIA) for the Hotazel Solar Park, Northern Cape Province, South Africa, juwi Renewable Energies (Pty) Ltd, 05/2016 - 10/2017, Senior Consultant**

The project comprised entailed an environmental impact assessment (EIA) for the development of a 200 MW solar photovoltaic (PV) facility, including a utility scale battery storage facility, as well as transmission line. Aurecon's services included environmental management and advisory, transport assessments, hydrological assessments and stormwater planning. Responsible for assisting the project leader with public participation process (PPP).

**Ladismith West flood damage repair, Western Cape Province, South Africa, Hatch Goba, 01/2016 - 03/2017, Environmental Control Officer (ECO)**

The project entailed providing environmental control officer (ECO) services for the construction and repair of stream crossings along a provincial road. Work was carried out within watercourses and sound environmental management was particularly important. Responsible for conducting site inspections and compiling the ECO reports to ensure compliance with the environmental maintenance management plan (MMP). Also responsible for conducting environmental induction training with the contractor and his staff, informing them of the environmental sensitivity of the site, identifying no-go areas, and educating staff on the importance of practising sound environmental management.

**Saffraan Rivier maintenance management plan (MMP), Western Cape Province, South Africa, Private client, 2015 - 03/2017, Consultant/Environmental Control Officer (ECO)**

The appointment involved providing environmental advisory services to a private landowner in Oudtshoorn, including correspondence with the competent authority and the compilation of a road management plan and an environmental maintenance management plan (MMP) for the property. Responsible for compiling a road rehabilitation plan and MMP for the farm and acting as environmental control officer (ECO) on the river rehabilitation and alien clearing activities.

**Midbrak sewer upgrades and pump station (Great Brak River), Western Cape Province, South Africa, V3 Consulting Engineers, 2016 - 03/2017, Environmental Control Officer (ECO)**

The project involved providing environmental control officer (ECO) services for the construction of a main sewer line and pump station. Responsible for conducting site inspections and compiling ECO reports, the post-construction audit report, and post-rehabilitation audit reports. The rehabilitation comprised the re-planting a variety of coastal forest species along the pipeline alignment and watering the plants every fortnight. Also responsible for conducting environmental induction training with the contractor and his staff, informing them of the environmental sensitivity of the site, identifying no-go areas and educating staff on the importance of practising sound environmental management.



**Herold Meander mixed-use development, Western Cape Province, South Africa, Sonqua Consulting, 01/2016 - 03/2017, Consultant**

The project involved a mixed-used development (i.e. agricultural village) comprising various agricultural components, including amongst others hops farming, small scale product processing, flower farming, honey farming, an aquaculture facility, and grazing for livestock). The housing component and infrastructure included package plant wastewater treatment works (WWTWs), a reservoir and pipelines. The development also has various tourism activities and a community hall. Responsible for carrying out the scoping and environmental impact assessment (EIA) processes, which included compiling environmental reports, and public participation and project management duties such as specialist management and consultation with authorities.

**Beaufort West 22 kV power lines, Western Cape Province, South Africa, Eskom, 2015 - 2016, Environmental Control Officer (ECO)**

The project involved providing environmental control officer (ECO) services for the construction of six 22 kV powerlines through undeveloped land in Beaufort West. Responsible for ECO services.

**Basic assessment (BA) process for the Bitou Public Safety Centre, Western Cape Province, South Africa, SMEC, 2015 - 2016, Consultant**

The project involved a full basic assessment (BA) process for the Bitou Public Safety Centre in Plettenberg Bay. Responsible for compiling reports, including the basic assessment report (BAR) and environmental management plan (EMP); conducting a full public participation process (PPP); and all project management related duties.

**Brandwacht Mediclinic amendment application, Western Cape Province, South Africa, Atterbury Property Developments, 2015 - 2016, Consultant**

The project involved a Part 2 amendment application process, which included compiling an impact statement report and public participation, for the Brandwacht Mediclinic in Stellenbosch. The original decision was appealed and therefore an amendment application was submitted via the Western Cape Minister of Environmental Affairs' Office. Responsible for coordinating the amendment application process.

**Uitvlug Section 24G application, Western Cape Province, South Africa, Private client, 2014 - 2016, Consultant**

The project involved carrying out a full environmental Section 24G process for the illegal construction of a road and vegetation clearance in Oudtshoorn. Responsible for carrying the Section 24G rectification process.

**Henque waste management licence (WML), Western Cape Province, South Africa, Henque Waste, 2015, Consultant**

Responsible for carrying out a full waste management licence (WML) application for a waste management and sorting facility.

**Sonskynvallei Phase 3 municipal housing project, Western Cape Province, South Africa, Mossel Bay Local Municipality, 2014 - 2015, Consultant**

The project entailed providing environmental advisory services and carrying out a full basic assessment (BA) environmental process for the municipal housing development in Sonskynvallei. Infrastructure upgrades associated with the project included increasing the capacity of an existing water reservoir, and constructing a new bulk water pipeline and sewer rising main. Specialist assessments included archaeological, botanical, heritage, traffic and visual assessments. Responsible for carrying out a full BA process, including the compilation of environmental reports such as a basic assessment report (BAR) and environmental management programme (EMPr); conducting a full public participation process (PPP) and all project management related duties, including specialist management and consultation with authorities.



## Qualifications

BA

BA (Hons) Geography  
(Cum Laude)

HED

MPhil Environmental  
Management

## Professional registrations

Member, International  
Association for Impact  
Assessments South  
Africa (IAIASa)

## Specialisation

Environmental  
management

**22**

years in industry

# Corlie Steyn

## Environmental Specialist



Corlie is a senior environmental practitioner specialising in environmental consulting for various disciplines. She has most recently been involved in civil, roads and gas power related projects.

She has extensive experience in environmental management and research projects related to climate change. She also has experience in the evaluation and review of environmental impact assessments (EIAs); advising on law enforcement and environmental matters; managing public participation processes (PPPs), including in-depth interviews with stakeholders; chairing workshops and presenting final reports to government departments and civil society stakeholders.

Corlie is a registered member of the International Association for Impact Assessment South Africa (IAIASa). Corlie is a part-time lecturer at the Nelson Mandela University's (NMU's) Department of Nature Conservation. She holds an MPhil degree in Environmental Management from the University of Stellenbosch, South Africa. She also holds an Honours Degree in Geography, a BA Degree and a Higher Education Diploma, all obtained from the University of Pretoria in South Africa.

## Experience

**Upgrading of the Churchill water treatment works (WTW), Eastern Cape Province, South Africa, Nelson Mandela Bay Metropolitan Municipality (NMBMM), 02/2007 - 06/2020, Senior Environmental Practitioner**

Aurecon has been appointed as the lead consultant for the planning, design and contract administration as well as the preparation, invitation and assessment of contract tender documents for the upgrading of the Churchill water treatment works (WTW). The scope involves the upgrading and modernisation of the dosing and control systems to address bottlenecks within the works; the replacement of the mechanical and electrical equipment as well as upgrading of other equipment to match the quality and duty of the new equipment; the refurbishment of civil structures and buildings and the refurbishment or replacement of pipework and fittings. Aurecon also undertook the environmental engineering services on the project. Responsible for compilation of application form and basic assessment reports (BAR) as well as the drafting of the public participation process (PPP) documents.

**Materials supply for gravel roads in the Western Cape, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works (DTPW), 02/2015 - 02/2020, Senior Environmental Practitioner**

Aurecon has been appointed to assist with the material supply and planning, design and control aspects for the maintenance of gravel roads in the Central Karoo and Eden District Municipalities. Services include engineering geology, environmental studies, materials source identification and project management.

The contract primarily entails locating and proving suitable material sources for the re-gravelling of 300 km and maintenance activities of 45 000 km of all gravel roads in the two identified district municipalities. Project manager for the Eden District Municipality roads, responsible for drafting and reviewing of environmental management programmes (EMPrs). Also responsible for site visits, client liaison and management of junior employees.

**Engineering services for the proposed 300 MW Namakwa solar energy development, Northern Cape Province, South Africa, Veld Solar One (Pty) Ltd, 08/2016 - 12/2019, Senior Environmental Practitioner**  
Aurecon was appointed to undertake an environmental impact assessment (EIA) for the development of three solar sites, approximately 20 km north-west of Aggeneys in the Northern Cape Province. The intention is that the solar facilities form part of a consolidated solar development consisting of the proposed Nama Sun 150 MW concentrated solar power (CSP) farm and proposed Veld PV South consisting of a 75 MW photovoltaic (PV) facility and utilise shared infrastructure where possible to minimise their overall footprint. Responsible for compilation of documents, public participation coordination, stakeholder engagement, drafting of environmental management programme (EMPr) and rehabilitation plan, coordination of specialists, budget management and invoicing for the proposed Veld PV South energy facility on the farm Haramoep in the Namakwa District Municipality.

**Engineering services for the development of Newcastle Power Station, New South Wales (NSW), Australia, AGL Energy Limited (AGL), 06/2018 - 12/2019, Senior Environmental Practitioner**  
Aurecon has been appointed to conduct the environmental impact assessment (EIA) and design for the proposed gas power station at Tomago in the Newcastle area of New South Wales (NSW) to provide approximately 250 megawatts (MW) of firming capacity to the National Electricity Market (NEM). Responsible to summarise the biodiversity development assessment, noise and vibration assessment, visual assessment, electromagnetic fields (EMF) assessment, bushfire assessment, plume rise assessment, fire safety and groundwater assessments.

**Pre-feasibility study for Luapula Hydropower Project, Democratic Republic of the Congo (DRC) and Zambia, Southern African Power Pool (SAPP), 07/2018 - 07/2019, Senior Environmental Practitioner**  
Aurecon was engaged to carry out pre-feasibility studies for the environmental and social impact assessment (ESIA) opportunity for the development of the proposed Luapula River Hydroelectric Scheme.

The scheme, which includes multiple dams with capacities ranging from 600 to 900 MW, is geared to secure electricity supply for Zambia and the Democratic Republic of the Congo (DRC). To bring this vision to life, Aurecon will work in parallel with a technical team to document the project baseline, assess and recommend alternatives, and identify the environmental and social concerns. The project team will also develop terms of reference (ToR), which will guide the ESIA. Responsible for the compilation of the legislation chapter of the screening report and compilation of the terms of reference (ToR) for the ESIA as well as report writing.

**Mossel Bay Upgrading of Informal Settlements Programme (UISP), Western Cape Province, South Africa, Mossel Bay Local Municipality, 01/2017 - 06/2019, Environmental Practitioner**

Aurecon has been appointed to develop the Upgrading of Informal Settlements Programme (UISP) for 17 informal settlements in Mossel Bay. The objective of the project entails the preparation of the upgrading plans acquisition of statutory approvals from the relevant government authorities. Responsible for the compilation of basic assessment reports (BARs) and for the public participation process (PPP).

**Preliminary design and contract documentation for the development of Lonsdale Street Sewer Stage 2A, Victoria (VIC), Australia, City West Water, 04/2018 - 12/2018, Senior Environmental Practitioner**

Aurecon was commissioned to undertake preliminary design of Stage 2A (Lonsdale Street) for issue to a design and construct tender. Stage 2A works are understood to consist of a 1 400 mm internal diameter glass reinforced plastic (GRP) sewer running from an invert level of 0.48 mAHD at Spencer Street (CH 0) to an invert level of approximately 2.50 mAHD at Elizabeth Street (CH 900). A total length of 900 m. A 600 mm diameter augured pipe will be used to connect the Elizabeth Street shaft to the existing ELZ manhole within Elizabeth Street. Stage 2A will connect directly into Stage 1 works at Spencer Street. Responsible for the compilation of a risk report and review of all applicable legislation. The report had to identify key risks and issues and propose





mitigation measures to support the project approvals where required, the site management plan and environmental management and compliance throughout the design and construction.

**Screening process for two gas-to-power facilities in Saldanha, Western Cape Province, South Africa, SolarReserve South Africa, 02/2016 - 03/2018, Environmental Practitioner**

The project involved constructing two gas-to-power facilities in Saldanha, which comprise up to three phases consisting of 1 000 MW combined cycled gas turbines (CCGTs) each. It also involved constructing a pipeline line corridor for water intake and a gas pipeline from a liquefied natural gas (LNG) terminal. Aurecon's scope involved a constraints and opportunity analysis of the two sites, including reviewing legislative and policy requirements, such as the IFC Performance Standards on Environmental and Social Sustainability. A description of the environmental and socio-economic baseline was provided, including sensitivities, and high-sensitivity and "No Go" areas were identified. Responsible for project management, team liaison and coordination, compilation of documents, public participation coordination, stakeholder engagement, drafting of environmental management programme (EMPr) and rehabilitation plan, coordination of specialists, budget management and invoicing. Also responsible for assisting with the compilation of the two scoping reports.

**Environmental impact assessment (EIA) for the Hotazel Solar Park and associated infrastructure, Northern Cape Province, South Africa, juwi Renewable Energies (Pty) Ltd, 05/2016 - 10/2017, Environmental Practitioner**

The project entailed an environmental impact assessment (EIA) for the development of a 200 MW photovoltaic (PV) solar facility including a utility scale battery storage facility. This included the basic assessment report (BAR) for the transmission line for the Hotazel solar park facility. Responsible for compiling the BAR.

**Working for Wetlands Plan 2014 - 2017, National, South Africa, South African National Biodiversity, 06/2013 - 06/2017, Senior Environmental Practitioner**

Aurecon was appointed in 2013 for a three-year cycle for the design, planning, environmental, project and risk management of the South African Government's Working for Wetlands Programme, which is a nationally run initiative by the South African National Biodiversity Institute (SANBI). The programme's objective is to rehabilitate damaged wetlands and to protect wetlands in all nine provinces of South Africa, with an emphasis on complying with the principles of the Expanded Public Works Programme (EPWP) through employing only local small, medium and micro enterprises (SMMEs). Responsible to review rehabilitation plans as well as basic assessment reports.

**Environmental impact assessment (EIA) for the expansion of approved solar energy facilities near Prieska and De Aar, Northern Cape Province, South Africa, Mulilo Renewable Energy (Pty) Ltd (MRE), 03/2013 - 06/2016, Environmental Practitioner**

The project involved an environmental impact assessment (EIA) for the expansion of approved solar energy facilities located on the Hoekplaas and Klipgats Farms in Prieska and the Badenhorst Dam and Du Plessis Dam Farms in De Aar. The expansion of Hoekplaas Farm includes ten additional 75 MW photovoltaic (PV) facilities, while the expansion of Klipgats Pan Farm includes six additional PV units. The expansion of Badenhorst Dam Farm includes four additional 75 MW PV facilities, and that of the Du Plessis Dam Farm includes three additional PV units. Responsible for the compilation of the environmental management plan (EMP).

**Shire River Basin Management Programme Phase I (SRBMP-I) project: Preparation of National Integrated Catchment Management and Rural Infrastructure Development Guidelines, Shire River Basin, Malawi, Ministry of Agriculture, Irrigation and Water Development (MoAIWD), 02/2014 - 04/2016, Environmental Practitioner**

The project entailed the preparation of National Integrated Catchment Management and Rural Infrastructure Development Guidelines as part of the Shire River Basin Management Program (SRBMP) project. The overall objective of the project is to increase sustainable social, economic and environmental benefits by effectively and collaboratively planning, developing and managing the Shire River Basin's natural resources. The project development objective (PDO) and global environmental objective (GEO) of the first phase (SRBMP-I) are to develop the basin's planning framework in order to improve land and water management for ecosystem and livelihood benefits in target areas. Aurecon was appointed to collect and review existing guidelines and to compile consolidated national catchment management guidelines for Malawi, which are targeted at a



community and village level. The guidelines are developed by and for use by the relevant government departments, their development partners and other stakeholders and cover multi-sectoral planning and implementation of catchment management at different scales (from basin-wide to village level). Responsible for the compilation of the Permaculture Chapter in the guidelines.

**Construction of Outeniqua Wind Farm, Western Cape Province, South Africa, juwi Renewable Energies (Pty) Ltd, 03/2013 - 03/2015, Environmental Practitioner**

Aurecon was appointed to undertake an environmental impact assessment (EIA) process for the construction of a wind energy facility (WEF) and all associated infrastructure near Uniondale in the Western Cape. The proposed WEF would comprise 13 to 15 turbines of 2 MW to 3 MW each, with a combined total capacity of 39 MW. Responsible for the compilation of the environmental management plan (EMP).

**Development of Langezandt Quays, Western Cape Province, South Africa, Golden Falls Trading 193, 06/2011 - 03/2015, Environmental Practitioner**

This project entailed an environmental impact assessment (EIA) for the proposed development of Langezandt Quays in Struisbaai. Responsible for the compilation of the environmental management plan (EMP).

**Western Cape road materials supply strategy, Western Cape Province, South Africa, Provincial Government of the Western Cape (PGWC): Department of Transport and Public Works (DTPW), 06/2008 - 03/2015, Environmental Practitioner**

Increasing pressures from tightened environmental legislation have resulted in lengthy waiting periods for identifying required material sources. The wait is also caused by investigation phases and getting approval from the Mineral Resources and Petroleum Development Act (DMR), the Department of Environmental Affairs and Development Planning (DEADP), the National Environmental Management Act (NEMA) and the Land Use Planning Ordinance (LUPO). Aurecon was appointed for prospecting suitable road making materials, sampling, testing and identifying technically suitable sources to be used for both identified projects and as strategic pits as well as for getting all the required approvals. Responsible for report compilation, corresponding with key stakeholders and specialists and undertaking the public participation process (PPP).

**Construction of a second bridge across the River Niger, Delta State, Nigeria, Nigeria Sovereign Investment Authority (NSIA), 05/2014 - 12/2014, Environmental Practitioner**

The Federal Government of Nigeria proposed to construct a second bridge across the River Niger between Onitsha and Asaba and selected the Julius Berger-AIIM Consortium as the preferred bidder. Aurecon was appointed on behalf of AIIM to undertake an environmental and social impact assessment (ESIA) required in terms of the Environmental Decree No 86 of 1992, in accordance with the International Finance Corporation (IFC) guidelines, which included a resettlement action plan (RAP). The aim was to ensure regulatory compliance with the Nigerian environmental legislation and achieve the highest possible compliance with Equator Principles (EPs). Responsible for the compilation of the environmental management plan (EMP) for the proposed bridge.

**Revision of the solid waste cost estimate report for George Local Municipality, Western Cape Province, South Africa, George Local Municipality, 06/2013 - 07/2014, Environmental Practitioner**

The project entailed the revision and compilation of the solid waste cost estimate report for George Local Municipality done during 2012.

**Solid waste cost estimate report for George Local Municipality, Western Cape Province, South Africa, George Local Municipality, 06/2012 - 07/2014, Environmental Practitioner**

The project entailed the compilation of a solid waste cost estimate report for George Local Municipality, including the Uniondale site. Responsible for site visits, public participation and compilation of the report.

**Solid waste cost estimate reports, Northern and Western Cape Provinces, South Africa, Various, 06/2012 - 07/2014, Environmental Practitioner**

The project entailed the compilation of a solid waste cost estimate report for the George Local Municipality as well as the Hantam Local Municipality and six sites within the district. Responsible for site visits, public participation and compilation of the reports.



**Cost estimate for solid waste sites in the George and Uniondale municipal areas, Western Cape Province, South Africa, Mubeko Africa, 06/2014 - Date, Environmental Practitioner**

This project entailed the compilation and public-private partnership (PPP) involved with the updated cost estimate for the solid waste sites in George and Uniondale.

**Working for Wetlands Programme, Western Cape Province, South Africa, South African National Biodiversity Institute (SANBI), 06/2013 - Date, Environmental Practitioner**

Aurecon was appointed for a three year project cycle to undertake the planning, design, environmental, project and risk management of the South African government's Working for Wetlands Programme. Responsible for the compilation of a basic assessment report (BAR), public-private partnership (PPP) and application form.

**Environmental impact assessment (EIA) for three photovoltaic (PV) facilities near De Aar, Northern Cape Province, South Africa, Mulilo Renewable Energy (Pty) Ltd (MRE), 09/2011 - 03/2013, Environmental Practitioner**

The project entailed an environmental impact assessment (EIA) for three photovoltaic (PV) power facilities near De Aar in the Northern Cape. PV2 is located on Paarde Valley Farm (Portion 2 of Farm 145), generating between 75 and 150 MW, and covering an area of 225 to 450 ha. PV3 is located on the Badenhorst Dam Farm (Portion 1 of Farm 180), generating between 100 and 135 MW, and covering an area of 300 to 405 ha. PV4 is on the Du Plessis Dam Farm (Farm 179 remainder), generating 19 MW, and covering an area of 1 060 ha. The associated infrastructure required for the PV facility include 132 kV overhead transmission lines; the upgrading of access roads and water supply infrastructure linking the site to the municipal network. Responsible for the compilation of an environmental report and a screening report as per criteria of the independent power producer (IPP) programme as well as an environmental management plan (EMP) for the proposed solar energy facility on Annex Du Plessis Dam Farm.

**Proposed wind and solar/photovoltaic (PV) energy facility near Springbok, Northern Cape Province, South Africa, South Africa Mainstream Renewable Power Developments, 03/2012 - Date, Environmental Practitioner**

The project involved environmental impact assessments (EIA) for a 750 MW wind energy facility and a 250 MW solar photovoltaic energy facility on farms near Springbok. Responsible for report compilation, corresponding with key stakeholders and specialists and undertaking the public participation process (PPP).

**Scenario planning to assess the implications of climate change on land and water use within the agricultural sector of the Garden Route, Western Cape Province, South Africa, Wildlife and Environment Society South Africa (WESSA), 01/2008 - 12/2010, Environmental Practitioner**

The project comprised a study for the completion of a publication relating to climate change. The study entailed examining how farmers' perceptions of weather conditions correspond with the climatic data recorded at various meteorological stations by conducting in-depth interviews; and studying analysed farmers' adaptive responses and perceptions of climate change. The project implemented a scenario-planning exercise to determine adaptation trends in the observed and projected climate for the Garden Route, with the aim of providing possible solutions for wiser agricultural practices. Responsible for completing two reports; public participation; literature reviews of the existing data relating to the implications of changes in temperature and rainfall patterns on agricultural practices; and the collation of climatic data; the completion of an assessment of current agricultural practices, including an assessment of the farmers' attitudes towards changing rainfall patterns and other climatic variables. The results were incorporated into a scenario-planning exercise to determine trends in the observed and projected climate for the project area. Final results were reviewed by a panel of experts, comprising an agricultural economist, a climatologist, a biologist, and a sociologist, during a workshop where the panel suggested recommendations to the farmers, agricultural unions, relevant government departments and politicians, based on the outcomes projected by the models. These reports were then disseminated to government departments and civil society stakeholders.

**Review of impact assessments and appeals, Western Cape Province, South Africa, Western Cape Department of Environmental Affairs and Development Planning, 05/2008 - 04/2010, Principal Environmental Officer**

The project entailed the review of impact assessments and appeals in terms of the Environment Conservation Act (ECA). Responsible for site visits and consulting on land development processes.

**Corlie Steyn**

Zutari, previously known as Aurecon



**Unifying and standardising of highway engineering practices, Abu Dhabi, United Arab Emirates (UAE), Abu Dhabi Department of Transport (DoT), 01/2009 - 01/2010, Environmental Practitioner**

The project included an environmental impact assessment (EIA) for the Abu Dhabi transport system, relating to the unifying and standardising of highway engineering practices. Responsible for reviewing the manual, completing comment sheets and writing the environmental chapter.

**Review of the biodiversity components of municipal spatial development frameworks (SDFs), Western Cape Province, South Africa, South African National Biodiversity Institute (SANBI), 01/2008 - 04/2008, Environmental Practitioner**

Aurecon was appointed to provide an overview of the requirements for biodiversity in spatial development frameworks (SDFs) and an assessment of the current status of biodiversity in these SDFs in the Western Cape. This formed part of the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF) funded Cape Action for People and the Environment (CAPE).

**Independent review of environmental impact assessment (EIA) applications, Eastern Cape Province, South Africa, Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), 02/2007 - 04/2008, Specialist Independent Reviewer**

The project entailed the review of environmental impact assessment (EIA) applications to assist the Eastern Cape Province with the processing of the backlog of applications in terms of the Environment Conservation Act (ECA).

**Review of impact assessments and appeals, Western Cape Province, South Africa, Western Cape Department of Environmental Affairs and Development Planning, 03/2003 - 12/2006, Environmental Officer**

The project involved the review of applications in terms of the National Environmental Management Act (NEMA). Responsible for liaising with relevant authorities with regard to applications, conducting site visits, consulting on land development processes, environmental management program reports, liaising with stakeholders on the implementation of the relevant environmental legislation and checking legal non-compliance. Also responsible for liaising with municipalities and mentoring junior environmental officers.

