

**Holland & Associates**  
Environmental Consultants

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

**PROPOSED PAARDE VALLEY PV2 SWITCHING STATION,  
132KV OVERHEAD POWERLINE TO VETLAAGTE MAIN  
TRANSMISSION SUBSTATION (MTS), AND ASSOCIATED  
INFRASTRUCTURE**

**CIVIL AVIATION COMPLIANCE STATEMENT**

**JULY 2022**

**Compiled for:**

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# 1 Introduction

## 1.1 Background

Environmental Authorisation (EA) for 150 MW Paarde Valley PV2 was granted by the Department of Environmental Affairs (DEA) (now known as the Department of Forestry, Fisheries and the Environment (DFFE)) on 7 September 2012, in terms of the National Environmental Management Act (NEMA), Environmental Impact Assessment (EIA) Regulations (2010). The authorised project includes the construction of a PV solar energy facility to generate approximately 75 – 150 MW on the aforementioned farm, as well as 132 kV / 220 kV overhead transmission lines and associated infrastructure (access roads, water supply infrastructure, stormwater infrastructure, internal access roads, buildings and fencing).

The currently authorised 132kV/ 220kV grid connection for Paarde Valley PV2 is routed from the Paarde Valley PV2 facility to the De Aar substation. However, Eskom has grid capacity constraints in the Northern Cape, and at certain lines and on certain substations. Subsequent to the issuing of the EA for the Paarde Valley PV2 facility and its associated authorised grid connection, Eskom has indicated that it does not currently have capacity for the Paarde Valley PV2 facility to connect at the De Aar substation. Accordingly, the Applicant proposes to amend the authorised grid connection (re-alignment and termination point) and create a separate EA for the ESKOM's self-build components (switching station and gridline).

Paarde Valley PV2 (Pty) Ltd (hereafter referred to as the "Applicant") proposes the construction of a 132 kV, double circuit, overhead powerline (OHPL) grid connection from the authorised on-site substation and switching station at the Paarde Valley PV2 solar energy facility to the Vetlaagte Main Transmission Station (MTS) (which is currently undergoing its own EA application process). The proposed OHPL would be approximately 12.7 km in length, and is located entirely within an Electricity Grid Infrastructure (EGI) Strategic Transmission Corridor, i.e. in the Central Corridor<sup>1</sup>. A 200 m corridor (100 m of each side of the line) has been assessed and is being applied for. The final OHPL servitude will be registered as 31 m in width, however during the design development process a corridor of 200 meters is required to allow for minor tower position adjustments. The exact pylon locations will be determined by the outcome of the specialist's investigations, and during detailed design engineering considerations. On average there will be 4 - 5 towers per kilometre, so that the route will consist of approximately 40 towers. The teams constructing the OHPL often use cranes and these will fit into an area with a maximum radius of approximately 30 m around the base of each tower, with the final footprint being relatively small. The line will have a capacity of 132kV and will make use of either steel monopole or steel lattice structure in line with Eskom required specifications.

A monopole self-supporting structure has a maximum base of 5 m in diameter above the ground. In some situations the structures have stays. These would fall into the area with a maximum radius of 30 meters, but the stays themselves are hardly exposed at ground level, with only small steel rods protruding from the ground. Lattice towers have a bigger footprint as each has four legs that

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<sup>1</sup>as per Government Notice (GN.) 113 of Government Gazette No. 41445 published 16 February 2018, in terms of the NEMA (Act No. 107 of 1998).

are a maximum of 15 m apart so that the final footprint would be approximately 15 m x 15 m. The height of either pylon structure will be up to 32 m.

The project will also include the switching station (SwS) component of the authorised Paarde Valley PV2 on-site substation, with an approximate footprint area of 100 m x 100m, and a feeder bay at the Vetlaagte MTS, with a capacity of 132 kV, as this needs to be handed over to Eskom with the grid connection self-build works once constructed.

In summary, the infrastructure associated with the proposed Grid Connection works for the authorised Paarde Valley PV2 project (and to be handed back to Eskom following construction), includes the following:

- A 132kV, double circuit Overhead Power Line (OHPL) from the Switching Station connecting to the proposed Vetlaagte Main Transmission Substation (MTS)
- 132kV Feeder bay at the Vetlaagte MTS
- On-site Switching Station (SwS), adjacent to the authorised IPP 132 kV substation. (approximately 100 m x 100 m combined)

Associated infrastructure includes the OHPL service road(s), Switching Station access road, and security fencing.

The technical details include:

- Overhead Powerline:
  - Height of pylons: Up to 32m
  - Type of poles/ pylons to be used: Double Circuit configuration. The alternatives under consideration include Steel lattice or Monopole structures in line with Eskom required specifications
  - Transmission line capacity: 132kV
  - OHPL Service Road (to lie within the OHPL servitude)
    - Length of OHPL service road(s) – Twin tracked service road following line route
    - Width of OHPL service road(s): 6 m
- Switching Station:
  - Footprint of approximately 50 m – 100 m x 100 m adjacent to IPP Substation
  - Area occupied by buildings (Control building, relay room, generator, storage warehouse, water tanks, ablutions): +-1.0 Hectares
  - Switching Station Access Road (separate access servitude from the nearest public road to the Switching Station yard)
    - Compacted gravel
    - Length of access road: +- 2.34 km
    - Width of access road: 8 m.

- Security fencing height: 2.4 m
- Type of fencing: Eskom palisade fencing + chainlink fencing for temporary works
- Capacity of on-site switching station: 132kv
- 132kV Feeder bay at the Vetlaagte MTS

The OHPL and Switching station are required to connect the authorised Paarde Valley PV2 Solar Energy Facility to the Eskom National Grid. The route selected follows boundary lines and / or existing OHPL routes so as to limit disruption to current farming activities as much as possible (Paarde Valley PV2 (Pty) Ltd, 2022).

Holland & Associates Environmental Consultants has been appointed to undertake the requisite application for environmental authorisation for the proposed grid connection, in accordance with the National Environmental Management Act (NEMA) (No. 107 of 1998) EIA Regulations (2014), as amended. The application for environmental authorisation will require an assessment of the proposed grid connection corridor.

## 1.2 Legislative Context

The National web-based Screening Tool identifies the site as of high sensitivity for the Civil Aviation theme.

According to the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Civil Aviation Installations (Government Gazette No. 43110 published on 20 March 2020), the following applies:

- *Prior to commencing with a specialist assessment, the current use of the land and the potential environmental sensitivity of the site under consideration, as identified by the screening tool, must be confirmed by undertaking a **site sensitivity verification**.*
  - *The site sensitivity verification must be undertaken by an environmental assessment practitioner or a specialist with expertise in radar.*
  - *The site sensitivity verification must be undertaken through the use of (a) a desktop analysis using satellite imagery (b) a preliminary on-site inspection, and (c) any other available and relevant information.*
  - *The outcome of the site sensitivity verification must be recorded in the form of a report that (a) confirms or disputes the current use of the land and environmental sensitivity as identified by the screening tool, such as new developments or infrastructure etc.; (b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and (c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.*
- *An applicant intending to undertake an activity identified in the scope of this protocol for which a specialist assessment has been identified on the screening tool on a site identified as being of 'high sensitivity' for Civil Aviation must submit a Civil Aviation Compliance Statement, or, on a site where the information gathered from the site sensitivity verification differs from the designation of "very high", "high", or "medium" on the screening tool and it is found to be of a "low" sensitivity, no further assessment requirements are identified.*

### 1.3 Environmental Assessment Practitioner (EAP) Details

Nicole Holland of Holland & Associates Environmental Consultants has a Bachelor of Science (Hons) in Environmental and Geographical Science from the University of Cape Town, specializing in Environmental Management. She has 20 years of experience in the environmental management field and has compiled and managed numerous environmental investigations including Environmental Impact Assessments, Environmental Management Plans/ Programmes (EMP), waste management license application processes, as well as applications for amendments of Environmental Authorisations.

Nicole has extensive experience in managing environmental impact assessments and EA amendment processes including, amongst others, agricultural development projects, renewable energy developments, water supply dams, wastewater treatment works, housing and resort developments, cemeteries, road upgrades, pipelines, waste sites, and a cement manufacturing plant. Nicole has also undertaken the independent review of a number of Scoping and Environmental Impact Reports and has been involved in a broad spectrum of other environmental work including Environmental Auditing, the drafting of Environmental Management Programmes, and Environmental Control Officer Work. Her CV and is attached as **Appendix A**.

**Table 1: Details of the Environmental Assessment Practitioner (EAP)**

<b>EAP</b>	Nicole Holland
<b>Qualification</b>	BSc (Hons) Environmental and Geographical Science
<b>Professional Affiliation:</b>	Registered with the South African Council for Natural Scientific Professions (SACNASP), in the following field of practice: Environmental Science (Professional Natural Scientist).  Registered Environmental Assessment Practitioner (EAP) with the Environmental Assessment Practitioners Association of South Africa (EAPASA).  Member of the IAIAasa (International Association for Impact Assessment (Western Cape branch).
<b>Professional Registration Number:</b>	SACNASP Reg.: 400306/06 EAPASA Reg.: 2020/493
<b>Registration Field:</b>	Environmental Science

### 1.4 Declaration of Independence

I, Nicole Holland, as the appointed Environmental Assessment Practitioner, hereby declare/affirm the correctness of the information provided in this compliance statement, and that I:

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



Signature

Date: 5 July 2022

## **2 Methodology**

### **2.1 Desktop Study**

The following information was used to conduct a desktop study of the proposed development site:

- The DFFE National Web-based Screening Tool;
- Publicly available satellite imagery, elevation, and topographical data.

### **2.2 Site inspection**

A site visit of site and its surrounding areas was undertaken by the EAP and EAP's assistant (Ms Tilly Watermeyer of Holland & Associates Environmental Consultants) on 19 – 20 April 2022. The site was covered on foot and by motor vehicle. Other potential areas of influence, such as the De Aar Airport and the Ministry of Defence's Ammunition Depot, were also investigated. Observations pertaining to the potential impact of the proposed project were made and documented. Photographs of the areas for the proposed development, and surrounding landscapes and infrastructure were taken (Appendix B).

### **2.3 Assumptions and limitations**

The assumption is made that all information sources contained accurate and correct information.

### **2.4 Protocol Requirements for a Civil Aviation Compliance Statement**

The Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Civil Aviation Installations (Government Gazette No. 43110 published on 20 March 2020) sets out the requirements for a Civil Aviation Compliance Statement, which were followed and are presented in Section 4.

## **3 Results**

### **3.1 The Project Site**

The proposed switching station, and associated access road, is located within the authorized Paarde Valley PV2 Solar Facility site on Portion 2 of Farm 145, Paarde Valley..... The proposed 132 kV OHPL would run from the authorised Paarde Valley PV2 substation and proposed switching station location, in a south-easterly direction, for approximately 8 km before running southwards for approximately 4.5 km to the Vetlaagte Main Transmission Substation (which is the subject of a separate Environmental Authorisation process). The proposed powerline route corridor would lie within existing powerline servitudes where possible (refer to Photos 1 -3).

During the site visit, numerous operational powerlines were observed within the landscape. These lines ranged from 22 kV to 400 kV in size and were observed throughout the proposed powerline route (refer to Photo 3).

The 'high' sensitivity rating designated by the Screening Tool is a result of the presence of the De Aar Airport, which lies approximately 6.5 km from the nearest point of the proposed project (i.e. the termination point of the proposed grid line, at the Vetlaagte MTS). It should be noted that numerous powerlines, some of which are larger than the proposed 132 kV powerline, are located nearer to the De Aar Airport, most of them connecting to Hydra Substation which is located approximately 2.5 km south of the proposed powerline's end point (at Vetlaagte MTS). Furthermore, the De Aar Airport appeared to not be in use at the time of the site assessment. A few derelict buildings were observed at the De Aar Airport, and the runway was unrecognizably overgrown. Domestic animals were also observed grazing on the runway (refer to Photo 4). Based on these observations, the sensitivity is deemed to be 'low' and the proposed project is not expected to have an unacceptable impact on Civil Aviation.

The South African Civil Aviation Authority (SACAA) have indicated that they have no objection to the proposed project and have issued a conditional approval (attached as Appendix C).



Photo 1: The proposed powerline would lie within the servitude of these operating powerlines which run from the area of the Paarde Valley PV2 Facility site in a south-easterly direction.





Photo 2: View of the proposed powerline corridor, where it would cross the R43. The proposed route would lie within the servitude of the observed powerlines.



Photo 3: View of the proposed powerline route corridor on the Remainder of Farm Vetlaagte No. 4, in a southerly direction. The proposed route would lie within the observed existing powerline servitude. To the right of this photograph, powerlines larger than the proposed project can be seen, heading towards Hydra Substation. These large powerlines are nearer to the De Aar airport than the proposed powerline.



Photo 4: The De Aar airport. The observed buildings do not appear to be maintained and appear to be unused in their entirety. No personnel or aircrafts were observed during the site visit. From this observation it appears that the airport is very seldomly used, if at all.



Photo 5: A view of the De Aar airport runway and the airport infrastructure in the lefthand side of the photograph. The runway is very difficult to recognize as it is overgrown with vegetation.

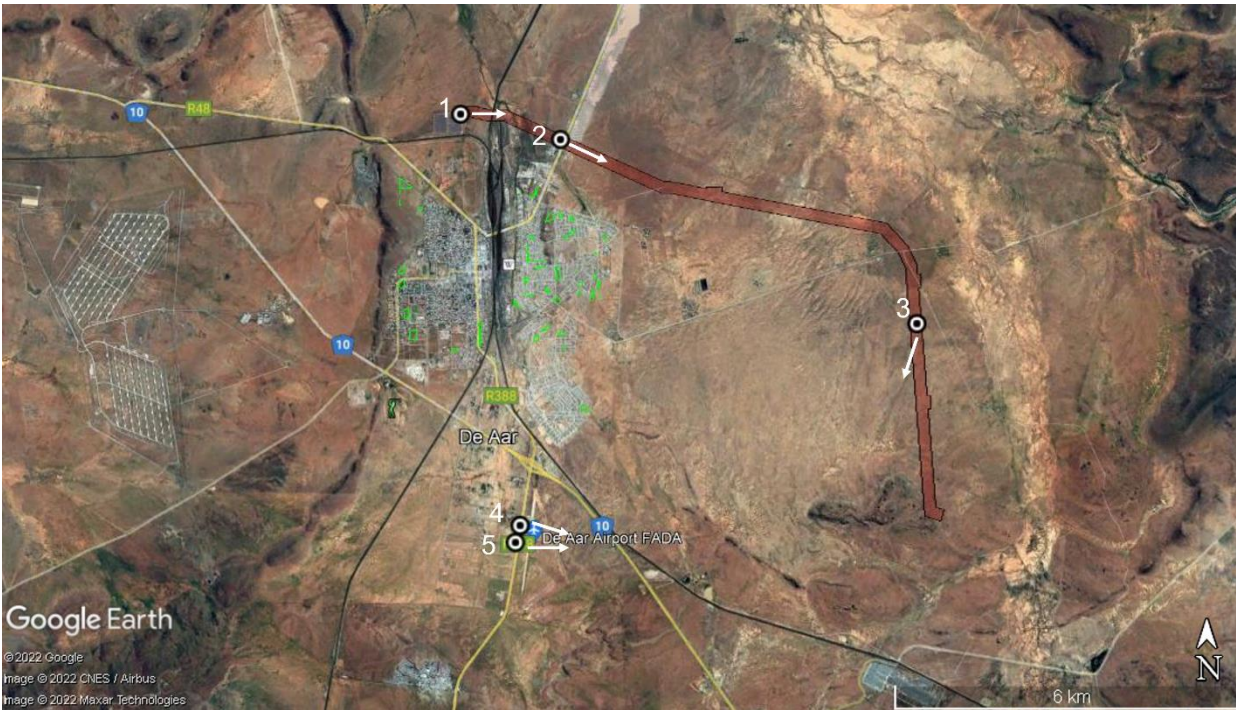


Photo positions 1 – 5 and the proposed grid connection from Paarde Valley PV2 Solar Facility to Vetlaagte Main Transmission Substation.

## 4 Conclusion

A site inspection was conducted by the EAP and her assistant on 19-20 April 2022.

**Table 2: Requirement for Civil Aviation Compliance Statements in terms of GN 43110**

Requirement as per GG No 43110	Compliance Statement	Reference in this CS
The compliance statement must be prepared by an environmental assessment practitioner or a specialist with expertise in radar	The compliance statement was prepared by the Environmental Assessment Practitioner, Nicole Holland.	Section 1.3 and Appendix A
The compliance statement must be applicable to the preferred site and the proposed development footprint	This Compliance statement is based on a site inspection conducted by the Environmental Assessment Practitioner and pertains specifically to the proposed development footprint.	Section 2 Section 3
The compliance statement must confirm the sensitivity rating for the site	Given that the De Aar Airport appears to no longer be in use, and given the high number of other powerlines in and around the proposed gridline corridor, the sensitivity rating for the site is 'Low'.	Section 3
The compliance statement must indicate whether or not the proposed development will have an unacceptable impact on civil aviation	Based on the EAP's observations, the proposed development is not expected to have an unacceptable impact on civil aviation.	Section 3
<b>The compliance statement must as a minimum contain the following information:</b>		
Contact details of the environmental assessment practitioner or the specialist, their relevant qualifications and expertise in preparing the statement and a curriculum vitae		Section 1.3 Appendix A
A signed statement of independence by the environmental assessment practitioner or specialist		Section 1.4
A map showing the proposed development footprint (including supporting infrastructure) overlaid on the civil aviation sensitivity map generated by the screening tool		Appendix B
A comment, in writing, from the South African Civil Aviation Authority (SACAA), which may include inputs from the Obstacle Evaluation Committee (OEC), if appropriate, confirming no unacceptable impact on civil aviation installations;		Appendix C

<p>Should the comment from the SACAA indicate the need for further assessment, a copy of the assessment report and mitigation measures is to be attached to the compliance statement and incorporated into the Basic Assessment Report or Environmental Impact Assessment Report with mitigation and monitoring measures identified included in the EMPr. The assessment must be in accordance with the requirements stipulated by the SACAA.</p>	<p>Not Applicable. The SACAA did not indicate the need for further assessment.</p>
<p>A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment report.</p>	<p>This statement has been appended to the BAR.</p>

## 5 References

Department of Forestry, Fisheries and the Environment (DFFE). The National Web Based Environmental Screening Tool. Accessed April & June 2022.

ESKOM. Eskom Transmission & Distribution Spatial Information. April 2022.

Google Earth Imagery, January 2022.

Stroh, L (South African Civil Aviation Authority). Conditional Approved: Proposed Paarde Valley PV 2 Solar Photovoltaic Power Energy Facility situated near De Aar in the Northern Cape Province. 9 March 2022.

Stroh, L (South African Civil Aviation Authority). Obstacle Approval. 9 March 2022.

## **Appendix A: EAP CV**

# **N L HOLLAND**

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## **CURRICULUM VITAE**

**Name** : Nicole Lisa Holland (née Zimmermann)  
**Profession** : Environmental Assessment Practitioner  
**Year of Birth** : 1976  
**Nationality** : South African  
**Contact Details** : P.O. Box 31108, Tokai, 7966  
Cell: 083 4645246  
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### **MEMBERSHIP IN PROFESSIONAL ASSOCIATIONS:**

- Professional Environmental Scientist: South African Council for Natural Scientific Professions (Registration Number: 400306/06)
- Member: South African affiliate of International Association for Impact Assessment (IAIAAsa)
- Founding member: Environmental Assessment Practitioners Association of South Africa<sup>1</sup>

### **KEY QUALIFICATIONS:**

Nicole Holland has a Bachelor of Science (BSc) in Environmental and Geographical Science from the University of Cape Town (UCT), and a BSc (Hons) in Environmental and Geographical Science (UCT), specializing in Environmental Management. She has seventeen years of experience in the environmental management field and has compiled and managed numerous environmental investigations including Environmental Impact Assessments, Environmental Management Plans/Programmes (EMP), waste management license application processes, as well as applications for amendments of environmental authorizations.

Nicole has played a leading role in the development of a number of strategic environmental policies and programmes including the development of an Integrated Environmental Programme for the West Coast District; the compilation of a water resource protection sub-strategy for the Olifants Doring Catchment Management Strategy; as well as the development of an information document on environmental legislation and its associated implications for the Drakenstein Municipality's Civil Engineering Services Department.

Nicole has extensive experience in managing Environmental Impact Assessments including, amongst others, agricultural projects, water supply schemes and dams, renewable energy

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<sup>1</sup> On account of having signed the declaration of support for the establishment of EAPASA at the launch event on 7 April 2011 in Cape Town.

facilities, wastewater treatment works, housing and resort developments, cemeteries, road upgrades, pipelines, waste sites, and a cement manufacturing plant. Nicole has also undertaken the independent review of a number of Basic Assessment and Scoping and Environmental Impact Assessment Reports and has been involved in a broad spectrum of other environmental work including Environmental Auditing, the drafting of Environmental Management Programmes, and Environmental Control Officer work.

## **EXPERIENCE RECORD**

### **1) Environmental regulatory processes (including Scoping & Environmental Impact Assessments, Basic Assessments, and amendments to Environmental Authorisations)**

<b><u>Year:</u></b>	<b><u>Role:</u></b>	<b><u>Tasks &amp; Responsibilities:</u></b>
2019	Project Director & Environmental Assessment Practitioner	<b>Proposed enlargement of Oude Schuur Dam and agricultural expansion, near Worcester, Western Cape Province</b> Appointed by the Applicant to undertake a Scoping and Environmental Impact Reporting process for the proposed project. The tasks and responsibilities include: undertaking a site assessment; pre-application meetings and liaison with the relevant authorities, engineers and Applicant; commissioning and management of specialist studies (including compilation of specialist Terms of References and review of specialist reports); the compilation (co-authoring) of the "Notice of Intent" Form, Application Form, and Scoping and EIA reports, Environmental Management Programme; as well as planning and conducting the public participation process.
2019	Project Manager & Environmental Assessment Practitioner	<b>Proposed Langkloof Dam and associated infrastructure, near Worcester, Western Cape Province</b> Appointed by the Applicant, Worcester East Water Users Association, to undertake a Scoping and Environmental Impact Reporting process for the proposed project. The tasks and responsibilities include: undertaking a site assessment; pre-application meetings and liaison with the relevant authorities, engineers and Applicant; commissioning and management of specialist studies (including compilation of specialist Terms of References and review of specialist reports); the compilation (primary author) of the "Notice of Intent" Form, Application Form and Scoping and EIA reports, Environmental Management Programme; as well as planning and conducting the public participation process.



2019	Project Manager & Environmental Assessment Practitioner	<b>Proposed Vlake Dam and associated infrastructure, near Worcester, Western Cape Province</b> Appointed by the Applicant, Worcester East Water Users Association, to undertake a Scoping and Environmental Impact Reporting process for the proposed project. The tasks and responsibilities include: undertaking a site assessment; pre-application meetings and liaison with the relevant authorities, engineers and Applicant; commissioning and management of specialist studies (including compilation of specialist Terms of References and review of specialist reports); the compilation (primary author) of the "Notice of Intent" Form, Application Form and Scoping and EIA reports, Environmental Management Programme; as well as planning and conducting the public participation process.
2019	Project Manager & Environmental Assessment Practitioner	<b>Wind Energy Facility on the eastern plateau (South) near De Aar, Northern Cape Province</b> Appointed by Mulilo De Aar 2 South (Pty) Ltd to undertake an Application for Amendment of the Environmental Authorisation (EA) for the project (for an amendment to the project description). The tasks and responsibilities included: a literature review; compiling specialists Terms of References, management of specialists, review of specialist comments, the compilation (primary author) of the Application Form for Amendment of the Environmental Authorisation, authority liaison, as well as planning and conducting the public participation process.
2019	Project Manager & Environmental Assessment Practitioner	<b>Springbok Wind Energy Facility, near Springbok, Northern Cape Province</b> Appointed by Mulilo Springbok Wind Power (Pty) Ltd to undertake an Application for Amendment of the Environmental Authorisation (EA) for the project (for an amendment to the project description). The tasks and responsibilities included a literature review, compiling specialists Terms of References, management of specialists, review of specialist comments, the compilation (primary author) of the Application Form for Amendment of the Environmental Authorisation, authority liaison, as well as planning and conducting the public participation process.

2018 - 2019	Project Manager & Environmental Assessment Practitioner	<b>Proposed cultivation of virgin soil, construction of a dam and associated infrastructure on Portion 27 and Portion 17 of Farm No. 466, Scherpenheuvel, Western Cape Province</b> Appointed by the Applicant, Driekuns Boerdery (Pty) Ltd, to undertake a Scoping and Environmental Impact Reporting process for the proposed project. The tasks and responsibilities included undertaking a site assessment, pre-application meetings with the relevant authorities, engineers, Applicant and WULA consultant, commissioning and management of specialist studies (including compilation of specialist Terms of References and review of specialist reports), the compilation (primary author) of the "Notice of Intent" Form, Application Form and Scoping and EIA reports, Environmental Management Programme, as well as planning and conducting the public participation process.
2017 - 2019	Project Manager & Environmental Assessment Practitioner	<b>Proposed raising of Ou Brakfontein Dam near Citrusdal, Western Cape Province</b> Appointed by Mouton Citrus (Pty) Ltd to undertake a Basic Assessment process for the proposed project. The tasks and responsibilities include undertaking a site assessment, pre-application meetings with the relevant authorities, engineers, Applicant and WULA consultant, commissioning and management of specialist studies (including compilation of specialist Terms of References and review of specialist reports), the compilation (primary author) of the "Notice of Intent" Form, Application Form, the Basic Assessment Report and Environmental Management Programme, as well as planning and conducting the public participation process.
2017 - 2019	Project Manager & Environmental Assessment Practitioner	<b>Proposed upgrade of a low level bridge over the Olifants River, near Citrusdal, Western Cape Province</b> Appointed by Mouton Citrus (Pty) Ltd to undertake a Basic Assessment process for the proposed project. The tasks and responsibilities include undertaking a site assessment, pre-application meetings with the relevant authorities, engineers and Applicant, commissioning and management of specialist studies (including compilation of specialist Terms of References and review of specialist reports), compilation (primary author) of the "Notice of Intent" Form, Application Form, Basic Assessment Report and Environmental Management Programme, as well as planning and conducting the public participation process.

2017 - 2019	Project Manager & Environmental Assessment Practitioner	<b>Wind Energy Facility on the Eastern Plateau (North) near De Aar, Northern Cape Province</b> Appointed by the Applicant, Longyuan Mulilo De Aar 2 North (Pty) Ltd to undertake the Application for Amendment of the Environmental Authorisation, as well as the Application for Amendment of the approved Environmental Management Programme (EMPr) and Layout Plan for the Wind Energy Facility. The tasks include review of historical information (including original EIA and specialist reports), compilation of specialists Terms of References, management of and review of specialist studies, compiling (primary author) the relevant DEA application forms and reports, attending and presenting at a pre-application meeting with DEA, as well as planning and conducting the public participation process.
2017 - 2019	Project Manager & Environmental Assessment Practitioner	<b>Longyuan Mulilo Maanhaarberg Wind Energy Facility near De Aar, Western Cape Province</b> Appointed by the Applicant, Longyuan Mulilo De Aar 2 North (Pty) Ltd, to undertake the Application for Amendment of the Environmental Authorisation, as well as the Application for Amendment of the approved Environmental Management Programme (EMPr) and Layout Plan for the Wind Energy Facility. The tasks and responsibilities include review of historical information (including original EIA and specialist reports), compilation of specialists Terms of References, management and review of specialist studies, compiling (primary author) the relevant application forms and reports, attending and presenting at a pre-application meeting with DEA, as well as planning and conducting the public participation process.
2017	Project Manager & Environmental Assessment Practitioner	<b>Proposed raising of Ruimsig Dam and expansion of agricultural areas, on Remainder of Portion 56 and Portion 93 of the Farm De la Haye No. 92, Near De Doorns, Western Cape</b> Appointed by the Applicant to undertake a Basic Assessment process for the proposed project. The tasks and responsibilities include undertaking a site assessment, pre-application meetings with the relevant authorities, engineers and Applicant, commissioning and management of specialist studies (including compilation of Specialists Terms of References and review of specialist reports), compilation (primary author) of the "Notice of Intent" Form, Basic Assessment Report and Environmental Management Programme, as well as planning and conducting the public participation process.

2015 - 2016	Project Manager & Environmental Assessment Practitioner	<b>Worcester East Water Users Association Water Contingency Supply Scheme, Western Cape:</b> Appointed by the Worcester East Water Users Association (WEWUA) to undertake a screening study for the proposed WEWUA Contingency Supply Scheme (including contingency storage dams and associated pipelines). The tasks and responsibilities included pre-application meetings with the relevant authorities, commissioning specialist studies (to determine Opportunities and Constraints of site), providing inputs into the planning process and the compilation (co-author) of a Screening Report.
2016	Project Manager & Environmental Assessment Practitioner	<b>10MW Augrabies PV Solar Energy facility, Northern Cape Province:</b> Appointed by Mulilo Renewable Project Developments to undertake the Application for Amendment of the Environmental Authorisation (i.e. amendment of technology from "fixed photovoltaic panels" to "single axis tracking"). The tasks and responsibilities included a literature review, compilation of specialists Terms of References, management of specialists, review of specialist comments, compilation (primary author) of the Application for Amendment of the EA, and planning and conducting the requisite public participation process.
2016	Project Manager & Environmental Assessment Practitioner	<b>Proposed 55.5MW Wind Energy Facility near Springbok, Northern Cape Province:</b> Appointed by Mulilo Renewable Project Developments to undertake the Application for Amendment of the Environmental Authorisation (i.e. amendment to layout, turbine specifications and number of turbines). The tasks and responsibilities included a literature review, compilation of specialists Terms of References, management of specialists, review of specialist reports/ comments, compilation of the Application Form for Amendment of the EA, compilation (primary author) of an Environmental Assessment Report, and planning and conducting the requisite public participation process.

- 2015 - Project  
2016 Manager & Environmental Assessment Practitioner
- 132kV Transmission line from De Aar 1 WEF to Hydra Substation, Northern Cape Province:**  
Appointed by Mulilo Renewable Project Developments to undertake the Application for Amendment of the Environmental Authorisation (i.e. re-alignment of a section of the transmission line and changes to monopole footprints). The tasks and responsibilities included a literature review, compilation of specialists Terms of References, management of specialists, review of specialist reports/ comments, compilation of the Application Form for Amendment of the EA, compilation (primary author) of an Environmental Assessment Report, and planning and conducting the requisite public participation process.
- 2015 - Project  
2016 Manager & Environmental Assessment Practitioner
- Proposed 140MW Wind Energy Facility situated on the Eastern Plateau (South) near De Aar, Northern Cape Province:**  
Appointed by Mulilo Renewable Project Developments to undertake the Application for Amendment of the Environmental Authorisation (i.e. amendment to layout, turbine specifications and number of turbines). The tasks and responsibilities included a literature review, compilation of specialists Terms of References, management of specialists, review of specialist reports/ comments, compilation of the Application Form for Amendment of the EA, compilation (primary author) of an Environmental Assessment Report, and planning and conducting the requisite public participation process.
- 2012 - Project  
2016 Manager & Environmental Assessment Practitioner
- Proposed Kleinberg Dam Scheme, Hex Valley, Western Cape, South Africa:**  
Appointed by the Hex Valley Water Users Association to undertake a Scoping and Environmental Impact Reporting process for the proposed dam scheme, including two new dams (Kleinberg & Boskloof Dams), weirs, pump stations and pipe distribution networks, in the Sandriftkloof of the Hex Valley. The tasks and responsibilities included: undertaking a site assessment; pre-application meetings and liaison with the relevant authorities, engineers and Applicant; commissioning and management of specialist studies (including compilation of specialist Terms of References and review of specialist reports); the compilation (primary author) of the Application Form for environmental authorisation, the Scoping Report and EIA report, and contributor to the Environmental Management Programme; as well as planning and conducting the public participation process.

2015 - 2016	Project Manager & Environmental Assessment Practitioner	<b>Proposed raising of Osplaas Dam, Hex Valley, Western Cape:</b> Appointed by the Hex Valley Water Users Association to undertake the Basic Assessment process for the proposed raising of the Osplaas Dam and upgrade of associated infrastructure at the Grootkloof Weir. The tasks and responsibilities included undertaking a site assessment, pre-application meetings with the relevant authorities, engineers and Applicant; commissioning and management of specialist studies (including compilation of specialist Terms of References and review of specialist reports), compilation (primary author) of the Basic Assessment Report and contributor to the Environmental Management Programme, as well as planning and conducting the public participation process.
2015 - 2016	Project Manager & Environmental Assessment Practitioner	<b>Proposed cultivation of virgin soil on Remainder of Farm Monte Vista No. 43, Hex Valley, Western Cape:</b> Appointed by Monte Vista Trust to undertake the Basic Assessment process for the abovementioned project. The tasks and responsibilities included: undertaking a site assessment; pre-application meetings with the relevant authorities and Applicant; commissioning, management and review of specialist studies; compilation (primary author) of the Basic Assessment Report and contributor to the Environmental Management Programme, as well as undertaking the public participation process.
2015 - 2016	Project Manager & Environmental Assessment Practitioner	<b>132kV transmission line from the De Aar 2 North WEF to the Hydra Substation, Northern Cape Province:</b> Appointed by Longyuan Mulilo De Aar 2 North (Pty) Ltd to undertake the Application for Amendment of the Environmental Authorisation. (i.e. amendment to monopole footprints). The tasks and responsibilities included: a literature review; compilation of specialists Terms of References, management of specialists and review of specialist reports/ comments; compilation (primary author) of the Application Form for Amendment of the EA, and planning and conducting the requisite public participation process.
2015	Project Manager & Environmental Assessment Practitioner	<b>100MW De Aar PV3 (Badenhorst Dam), Northern Cape Province:</b> Appointed by Mulilo Renewable Project Developments to undertake the Application for Amendment of the Environmental Authorisation. The tasks and responsibilities included: a literature review; and compilation of the Application Form for Amendment of the EA; planning and conducting the requisite public participation process; and liaison with the competent authority.

2015	Project Manager & Environmental Assessment Practitioner	<b>De Aar PV4 (19.9MW) facility, Northern Cape Province:</b> Appointed by Mulilo Renewable Project Developments to undertake the Application for Amendment of the Environmental Authorisation. The tasks and responsibilities included a literature review, compilation (primary author) of the Application Form for Amendment of the EA; planning and conducting the requisite public participation process; and liaison with the competent authority.
2015	Project Manager & Environmental Assessment Practitioner	<b>Proposed 75 – 150MW De Aar PV2 (Paarde Valley) facility, Northern Cape Province:</b> Appointed by Mulilo Renewable Project Developments to undertake the Application for Amendment of the Environmental Authorisation. The tasks and responsibilities included a literature review, compilation (primary author) of the Application Form for Amendment of the EA; planning and conducting the requisite public participation process; and liaison with the competent authority.
2014	Project Manager & Environmental Assessment Practitioner	<b>Proposed 50MW Wind Energy Generation Facility in Namaqualand, Western Cape Province:</b> Appointed by Mulilo Renewable Project Developments to undertake the public participation process for the Application for Amendment of the Environmental Authorisation. The tasks and responsibilities included a literature review, compilation and management of the I&AP database, and undertaking a public participation process.
2014	Project Manager & Environmental Assessment Practitioner	<b>Proposed upgrade and relocation of the CCA and TBTN treatment Plants at Somerset Timbers, Strand, Western Cape:</b> Appointed by Somerset Timbers (The Keith Wetmore Family Trust) to undertake the application process for the adoption/definition of an ad-hoc setback line for the proposed upgrade and relocation of their CCA and TBTN timber treatment plants at their premises in Strand. The tasks and responsibilities included undertaking a site assessment, compilation of a setback line application to be submitted to the Department of Environmental Affairs and Development Planning, as well as planning and conducting the public participation process.

2013-2015	Project Manager & Environmental Assessment Practitioner	<b>Proposed upgrading of a road leading to the Mossgas Quay, Port of Saldanha, Western Cape:</b> Appointed by Element Consulting Engineers, on behalf of Transnet National Ports Authority, to undertake the Basic Assessment Process for the upgrading of a road leading to the Mossgas Quay in the Port of Saldanha. The tasks and responsibilities included: undertaking a site assessment; pre-application meetings with the relevant authorities, engineers and Applicant; commissioning, management and review of specialist studies; the compilation (primary author) of the Basic Assessment Report, and contributor to the Environmental Management Programme, as well as planning and conducting the public participation process.
2013	Project Manager & Environmental Assessment Practitioner	<b>Proposed Stormwater Channels and water supply pipeline for the construction of the Mouton Citrus Pack House, Citrusdal, Western Cape:</b> Appointed by Mouton Citrus Pty Ltd to undertake the application process for the adoption/definition of an ad-hoc setback line for the proposed development on Portion 2 of the Farm Groot Valley No. 451 (Gelukwaard), Clanwilliam. The tasks and responsibilities included preparation and submission of the setback line application to the Department of Environmental Affairs and Development Planning, as well as planning and conducting a public participation process.
2012 – 2013	Project Manager & Environmental Assessment Practitioner	<b>Proposed upgrading of the Paarl Mountain and Ysterbrug pumping mains, Paarl, Western Cape:</b> Appointed by Aurecon South Africa (Pty) Ltd, on behalf of the Drakenstein Municipality, to undertake a Basic Assessment Process for the Paarl Mountain and Ysterbrug pumping main upgrades on Paarl Mountain (a declared Provincial Heritage Site) in Paarl. The tasks and responsibilities included: undertaking a site assessment; pre-application meetings with the relevant authorities, engineers, and Applicant; commissioning and management of specialist studies, compilation (primary author) of the Basic Assessment Report and contributor to the Environmental Management Programme, as well as planning and conducting the public participation process.



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|------|---|--|
| 2012 | Project<br>Manager &<br>Environmental<br>Assessment<br>Practitioner | <b>Raising of Keerom Dam near Worcester, Western Cape:</b><br>Appointed by the Nuy Irrigation Board to undertake a Basic Assessment Process for the raising of the Keerom Dam near Worcester. The tasks and responsibilities included: undertaking a site assessment; pre-application meetings with the relevant authorities, engineers and Applicant; commissioning, management and review of specialist studies; compilation (primary author) of the Basic Assessment Report and contributor to the Environmental Management Programme, as well as planning and conducting the public participation process.   |
| 2011 | Project<br>Manager /<br>Environmental<br>Assessment<br>Practitioner | <b>Paarl bulk sewer: Application for amendment of the environmental authorisation, Paarl, Western Cape:</b><br>Appointed by Lyners consulting engineers to undertake an Application for Amendment of the Environmental Authorisation for the Paarl South gravity outfall sewer (Paarl Bulk sewer). The tasks and responsibilities included: a site assessment; commissioning (including compiling specialist Terms of References), management and review of specialist studies; completion (primary author) of the necessary applications forms; assessment of potential impacts and planning and conducting a public participation process.   |
| 2011 | Project<br>Manager  | <b>Proposed AfriSam cement plant, limestone and clay quarries and associated infrastructure in Saldanha, Western Cape:</b><br>Appointed by AfriSam (South Africa) (Pty) Ltd to undertake a Scoping and Environmental Impact Assessment process (EIA) for the proposed construction of a cement plant, limestone and clay quarries and a transportation corridor (road/ conveyor) linking the quarries to the cement plant, in Saldanha, Western Cape. In addition to an application in terms of the NEMA EIA regulations, the project included an application for the requisite waste management license in terms of the National Environmental Management: Waste Act and Atmospheric Emissions Licence in terms of the National Environmental Management: Air Quality Act. Roles and responsibilities included literature review, management of project staff, review of documentation, applications forms and reports; attendance of meetings and planning the public participation process. |

2011	Project Manager & Environmental Assessment Practitioner	<b>Proposed wind energy facility near Gouda, Western Cape:</b> Appointed by iNca Energy to undertake a Scoping and Environmental Impact Assessment (EIA) for a proposed wind energy facility (30 MW) on Portion 1 of Farm 397 and Portion 2 of Farm 397 near Gouda in the Western Cape, including the construction of two 66kV overhead powerlines to connect into the ESKOM grid. Roles and responsibilities included literature review, site assessment, management of project staff, review of documentation, applications forms and reports; attendance of meetings and planning the public participation process.
2011	Project Manager & Environmental Assessment Practitioner	<b>Proposed wind energy facility near Vredenburg, Western Cape:</b> Appointed by iNca Energy to undertake a Scoping and Environmental Impact Assessment (EIA) for a proposed wind energy facility (30 MW) on Remainder of Farm 103, Waterklip, Portion 6 of Farm 103, Waterklip, Portion 3 of Farm 105, Zandfontein and Portion 5 of Farm 105, Zandfontein near Vredenburg in the Western Cape, including the construction of two 66kV overhead powerlines to connect into the ESKOM grid. Roles and responsibilities included literature review, management of project staff, review of documentation, applications forms and reports; attendance of meetings and planning the public participation process.
2009-2010	Project Manager & Environmental Assessment Practitioner	<b>Application for amendment of Environmental Authorisation: Paarl South Gravity Outfall Sewer:</b> Appointed by Lyners Engineers to undertake an application for amendment of the Environmental Authorisation for the project, which included realignment of portions of the pipeline along the Berg River and additional pipeline river crossings. The tasks and responsibilities included: a site assessment; commissioning (including compiling specialist Terms of References), management and review of specialist studies; completion (primary author) of the necessary applications forms; assessment of potential impacts and planning and conducting a public participation process.
2009 - 2010	Project Manager & Environmental Assessment Practitioner	<b>Proposed upgrading of the Piketberg Wastewater Treatment Works, Western Cape, South Africa:</b> Appointed by Water & Wastewater Engineers to undertake a Scoping and Environmental Impact Assessment (EIA) for the proposed upgrading of the Piketberg Wastewater Treatment Works. The tasks and responsibilities included: undertaking a site assessment; commissioning (including compiling specialist Terms of References), management and review of specialist studies; compilation (primary author) of the necessary applications forms for the requisite waste management license in terms of the National Environmental Management: Waste Act.

2008 - 2009	Project Manager & Environmental Assessment Practitioner	<b>Proposed construction of a disinfection plant at the Athlone Wastewater Treatment Works, Western Cape, South Africa:</b> Appointed by City of Cape Town (Wastewater Directorate) to undertake a Scoping and Environmental Impact Assessment for the proposed construction of a disinfection plant at the Athlone Wastewater Treatment Works (WWTW). The tasks and responsibilities included: literature review; undertaking a site assessment, liaison with the competent authority, Applicant, engineers and project team; commissioning (including compiling specialist Terms of References), management and review of specialist studies; the compilation (primary author) of the Scoping Report, Environmental Impact Report and Environmental Management Programme; and planning and conducting the public participation process, as well as management of project staff.
2008	Project Manager & Environmental Assessment Practitioner	<b>Proposed flow diversion at Green Point Outfall Sewer, Green Point, Western Cape, South Africa:</b> Appointed by the City of Cape Town (Wastewater Directorate) to undertake a Basic Assessment for the proposed flow diversion at the Green Point Outfall Sewer in Green Point, Cape Town. The tasks and responsibilities included: literature review; undertaking a site assessment, liaison with the competent authority, Applicant, engineers and project team; commissioning (including compiling specialist Terms of References), management and review of specialist studies; the compilation (primary author) of the Basic Assessment Report and Environmental Management Plan; management of project staff, and planning and conducting the public participation process.
2007 - 2008	Project Manager & Environmental Assessment Practitioner	<b>Upgrading of the Malmesbury Wastewater Treatment Works, Malmesbury, Western Cape, South Africa:</b> Appointed by the Swartland Municipality to undertake an EIA for the upgrading of the Malmesbury Wastewater Treatment Works. The tasks and responsibilities included: Literature review; undertaking a site assessment, liaison with the competent authority, Applicant, engineers and project team; commissioning (including compiling specialist Terms of References), management and review of specialist studies; the compilation (co-author) of the Application Form and Scoping Checklist, Background Information Document, Scoping Report and Environmental Management Plan; management of project staff, and planning and conducting the public participation process.

2006 to 2009	Project Staff/ Environmental Assessment Practitioner	<p><b>Raising of Clanwilliam Dam in the Western Cape, South Africa:</b> The Department of Water Affairs and Forestry initiated a study to consider the feasibility of raising the Clanwilliam Dam whilst undertaking required remedial works. The study included a comprehensive options assessment to identify the preferred suite of development options within the Water Management Area (WMA). The study verified the technical, environmental, social, economic and financial viability of raising the Clanwilliam Dam and determined the optimal dam height. Alternatives for increasing supply volumes were investigated in relation to social development needs in the region. The tasks and responsibilities included: extensive literature review; site assessment; review of specialist studies, compilation (co-author) of the Scoping and EIA Reports, planning and conducting an extensive public consultation process.</p>
2005 - 2008	Project Manager & Environmental Assessment Practitioner	<p><b>Drakenstein Wastewater Treatment Strategy: Siting of Paarl South Wastewater Treatment Works, Paarl, Western Cape, South Africa.</b> Appointed by Drakenstein Municipality to undertake an EIA for the siting of the future Paarl South WWTW. The tasks and responsibilities included: Literature review; site assessment; commissioning (including compiling specialist Terms of References), management and review of specialist studies; compilation (primary author) of Application Form and Scoping Checklist, Background Information Document, Scoping Report, Environmental Impact Report and; planning and conducting the public participation process.</p>
2005 - 2006	Project Staff/ Environmental Assessment Practitioner	<p><b>Drakenstein Wastewater Treatment Strategy: Upgrading of Paarl Wastewater Treatment Works and construction of the Paarl South outfall sewer, Paarl, Western Cape, South Africa.</b> Appointed by Community Engineering Services, on behalf of the Drakenstein Municipality, to undertake an EIA for the proposed projects. The roles and responsibilities included: Literature review; site assessment; commissioning (including compiling specialist Terms of References), management and review of specialist studies; compilation (primary author) of Application Form and Scoping Checklist, Background Information Document, Scoping Report, Environmental Impact Report; and planning and conducting the public participation process.</p>
2005 - 2007	Project Staff/ Environmental Assessment Practitioner	<p><b>Proposed Development of Portion 75 of Farm 205, Rugte Valley, Lake Pleasant, Southern Cape, South Africa:</b> Appointed by Craig Anderson to undertake an environmental evaluation of the site, to determine the opportunities and constraints of the property. Tasks and responsibilities included: literature review, undertaking a site assessment; and compilation (co-author) of an Application Form and Scoping Checklist.</p>

- 2005 - 2006    Project Staff/  
Environmental  
Assessment  
Practitioner    **Construction of Saxdowns Road between Hindle Road and Stellenbosch Arterial, Blue Downs, Western Cape, South Africa:**  
Appointed by Jeffares and Green for the City of Cape Town: Oostenberg Administration to undertake an EIA for the proposed construction of Saxdowns Road between Hindle Road and Stellenbosch Arterial. The tasks and responsibilities included: literature review; undertaking a site assessment; review of specialist studies; the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document and Scoping Report; and assisting with the public participation process.
- 2005    Project Staff/  
Environmental  
Assessment  
Practitioner    **Proposed Upgrading of the Bonnievale Wastewater Treatment Works, Bonnievale, Western Cape, South Africa:**  
Appointed by the Breede River Winelands Municipality to undertake an EIA for the proposed upgrade of the Bonnievale Wastewater Treatment Works. The tasks and responsibilities included: Literature review; undertaking a site assessment; review of specialist studies; the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document, Scoping Report; and assisting with the public participation process.
- 2005    Project Staff/  
Environmental  
Assessment  
Practitioner    **Proposed Construction of an effluent pipeline between the New Town Pump Station in Wellington and the Paarl Wastewater Treatment Works, Paarl, Western Cape, South Africa:**  
Appointed by Community Engineering Services, on behalf of the Drakenstein Municipality, to undertake an EIA for the proposed construction of an effluent pipeline between the New Town Pump Station in Wellington and the Paarl Wastewater Treatment Works. The tasks and responsibilities included: Literature review; undertaking a site assessment; the compilation (co-author) of an Application Form and Scoping Checklist, and assisting with the public participation process.
- 2005    Project Staff/  
Environmental  
Assessment  
Practitioner    **Upgrading of the Hex River Valley Weirs, Hex River Valley, Western Cape, South Africa:**  
Appointed by the Hex Valley Irrigation Board, in association with the Drieriviere Irrigation Board and Worcester East Water Users Association to undertake an EIA for the conversion of the existing Keurhoekkloof, Moraine Kloof and Sand River diversion weirs into measuring stations, and the construction of a new measuring station at Upper Buffelshoek or Dome Kloof. The tasks and responsibilities included: literature review; a site assessment; and the compilation (primary author) of four Application Forms and Scoping Checklists.

2005	Project Staff/ Environmental Assessment Practitioner	<b>Further raising of the Zypherfontein Dam, Vanrhynsdorp, Western Cape, South Africa:</b> Appointed by the Doringrivier Trust to undertake an EIA for the proposed further raising of the Zypherfontein Dam. The tasks and responsibilities included: the compilation (co-author) of an Application Form and Scoping Checklist and assisting with the public participation process.
2004 - 2005	Project Staff/ Environmental Assessment Practitioner	<b>Upgrading of the Darling Wastewater Treatment Works, Darling, Western Cape, South Africa:</b> Appointed by the Swartland Municipality to undertake an EIA for the proposed upgrading of the Darling Wastewater Treatment Works. The tasks and responsibilities included: literature review, undertaking a site assessment, the compilation (primary author) of a Background Information Document and an Application Form and Scoping Checklist, as well as planning and conducting the public participation process.
2004	Project Staff	<b>Eastford Residential Estate, Knysna, Southern Cape, South Africa:</b> Appointed by Garden Route Quarries (Pty) Ltd. to undertake an EIA for the proposed Eastford residential estate and commercial node. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document and Scoping Report.
2004	Project Staff	<b>Little Ladywood Residential Estates, Plettenberg Bay, Southern Cape, South Africa:</b> Appointed by Swanvest 321 (Pty) Ltd. to undertake an EIA for the development of the proposed Little Ladywood Residential Estate. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist and Background Information Document.
2004	Project Staff	<b>Erf 2 Gordons Bay Residential Development, Gordons Bay, Western Cape, South Africa:</b> Appointed by Gordon Mount Properties (Pty) Ltd. to undertake an EIA for the development of a residential estate. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document and assisting with the public participation process.

2004	Project Staff	<b>Gloria Cove Resort Housing Development, Theewaterskloof Dam, Western Cape, South Africa:</b> Appointed by Martinique Bay Marketing cc. to undertake an EIA for the proposed Gloria Cove resort development on the Theewaterskloof Dam. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist and Scoping Report, as well as assisting with the public participation process.
2004	Project Staff	<b>Erf 86 Development, Jacobsbaai, Western Cape, South Africa:</b> Appointed by Spring Romance 16 (Pty) Ltd. to undertake an EIA for the development of residential and resort erven. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist.
2004	Project Staff	<b>Gamka Private Nature Reserve, Calitzdorp, South Africa:</b> Appointed to undertake an EIA for the proposed Gamka Private Nature Reserve in Calitzdorp. The tasks included the compilation (co-author) of an Application and Scoping Checklist and Background Information Document, as well as assisting with the public participation process.
2003 - 2004	Project Staff	<b>Verlorenvlei Coastal Game and Nature Reserve, Piketberg, Western Cape, South Africa:</b> Appointed by Dezzo Trading 126 (Pty) Ltd. to undertake an EIA for the proposed Verlorenvlei Coastal Game and Nature Reserve. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document, Scoping Report and undertaking assisting with the public participation process.
2003 - 2004	Project Staff	<b>Langezandt Fishermen's Village Development, Struisbaai, Western Cape, South Africa:</b> Appointed by Expectra 525 (Pty) Ltd. to undertake a full EIA for the development of the proposed Langezandt Fishermen's Village. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document, Scoping Report and Environmental Impact Report.
2003 - 2004	Project Staff	<b>Longlands Estate and Agricultural Village, Vlottenburg, Stellenbosch, Western Cape, South Africa:</b> Appointed by SLC Development Services (Pty) Ltd. to undertake a full EIA process for the development of the proposed Longlands Residential Estate and Agricultural village. The tasks included: site assessment, the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document, Scoping Report and Environmental Impact Report.

2003 - 2004	Project Staff	<b>Two Oceans Golf Estate and Resort, Bredasdorp, Western Cape, South Africa:</b> Appointed by Twin Palm Projects (Pty) Ltd. to undertake an EIA for the proposed Two Oceans Golf Estate and Resort development. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document and Scoping Report, and assisting with the public participation process.
2003	Project Staff	<b>Ashton – Montagu Water Pipeline, Western Cape, South Africa:</b> Appointed by the Breede River Winelands Municipality to undertake an EIA for the construction of a water pipeline from Ashton to Montagu. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist, Scoping Report, public participation process and Environmental Management System.
2003	Project Staff	<b>Closure and Rehabilitation of the Arniston, Struisbaai and L'Agulhas Waste Disposal Sites, Western Cape, South Africa:</b> Appointed by the Cape Agulhas Municipality to undertake an EIA for the closure and rehabilitation of the L'Agulhas, Struisbaai and Arniston waste disposal sites. The tasks included the compilation (co-author) of an Application Form and Scoping Checklist and Scoping Report, and assistance with the public participation process.
2003	Project Staff	<b>Langebaan Eco-Lodge, Langebaan, Western Cape, South Africa:</b> Appointed by G&R Project Services and Developers (Pty) Ltd., to undertake an EIA for the development of the "Langebaan Eco Lodge". This project entailed an environmental evaluation of the site and compilation (co-author) of a Background Information Document.
2003	Project Staff	<b>Upgrade of the Pennypinchers Timber Processing Plant, Cape Town, Western Cape, South Africa:</b> Appointed by the Peter Allan Building Material Trust to undertake an EIA for the upgrade of the Pennypinchers Timber Treatment Plant. The tasks included the compilation of an Application Form and Scoping Checklist.
2003	Project Staff	<b>Upgrade of the Hannesbaai Fish Processing Factory, St Helena Bay, Western Cape, South Africa:</b> Appointed by Hannesbaai Fishing Co (Pty) Ltd. to undertake an EIA for the upgrade of the Hannesbaai Fish Factory (i.e. the erection of a coal-fired boiler and development of additional storage and factory area). The tasks included: literature review; site assessment; the compilation (co-author) of an Application Form and Scoping Checklist; and assisting with the public participation process.



- 2002 - 2004      Project Staff      **De Bosch Estate Development, Stellenbosch, Western Cape, South Africa:** Appointed by Crystal Court (Pty) Ltd. to undertake a full EIA for the proposed De Bosch residential estate. The tasks included: Literature review, site assessment; the compilation (co-author) of an Application and Scoping Checklist, Background Information Document, Scoping Report and Environmental Impact Report, as well as assisting with the public participation process.
- 2002 - 2004      Project Staff      **Draaihoek Guesthouse, Piketberg, Western Cape, South Africa:** Appointed by Draaihoek (Pty) Ltd. to undertake an EIA for the development of a guesthouse, which included the compilation of an Application Form and Scoping Checklist.
- 2002 - 2003      Project Staff      **New Villiersdorp Cemetery, Villiersdorp, Western Cape, South Africa:** Appointed by the Theewaterskloof Municipality to undertake an EIA for the development of the new Villiersdorp Cemetery. The tasks included: literature review; site assessment; the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document and Scoping Report and assisting with the public participation process.
- 2002 - 2003      Project Staff      **Trekoskraal Development, West Coast, Western Cape, South Africa:** Appointed by Castle Estates (Pty) Ltd. to undertake an EIA for the development of ± 4 700 erven on the 1 362ha property. The tasks included: literature review, site assessment, review of specialist studies, the compilation (co-author) of an Application Form and Scoping Checklist, Background Information Document and Scoping Report.
- 2002            Project Staff      **Bokbaai Residential Conservation Smallholdings Development, Western Cape, South Africa:** Appointed by Bokbaai Property (Pty) Ltd. The tasks included: literature review; an environmental evaluation of the site; and preparation of an Application Form and Scoping Checklist.
- 2002            Project Staff      **Bredasdorp, Struisbaai and Napier Groundwater Development Programme, Western Cape, South Africa:** Appointed by the Cape Agulhas Municipality to undertake an EIA process for a groundwater exploration programme to augment the groundwater supplies of Bredasdorp, Struisbaai and Napier. The tasks included: literature review, site assessment; the compilation (co-author) of an Environmental Impact Report and assisting with the public participation processes.

- 2002      Project Staff      **Bredasdorp - Arniston Water Pipeline, Western Cape, South Africa:** Appointed by the Cape Agulhas Municipality to undertake an EIA for the upgrading of approximately 12km of the existing water pipeline, by construction of a new water pipeline between Bredasdorp and Waenshuiskrans/ Arniston. The tasks included an environmental site evaluation and compilation of an Application Form and Scoping Checklist.
- 2002      Project Staff      **Koo Valley Groundwater Supply Scheme, Western Cape, South Africa:** Appointed by the Koo Irrigation Board for the Department of Economic Affairs, Agriculture and Tourism to undertake a full EIA for the Koo Valley Groundwater Supply Scheme. The tasks included undertaking a site evaluation and assisting with the compilation of the environmental report.
- 2002      Project Staff      **Rivers Edge Resort, Bonnievale, Western Cape, South Africa:** Appointed by Toekomsbeleggings Nr. 1 (Edms) Bpk to undertake an EIA for the development of the Rivers Edge Resort Development. The tasks included assisting with the compilation of the environmental reporting and public participation process.
- 2002      Project Staff      **Sixteen Mile Beach Development, Yzerfontein, Western Cape, South Africa:** Appointed by Kovacs Investments 172 (Pty) Ltd. to undertake an EIA for the proposed Sixteen Mile Beach resort development. The tasks included a site assessment and the compilation of an Application Form and Scoping Checklist.
- 2002      Project Staff      **Still Bay Jetski's, Western Cape, South Africa:** Appointed by the Langeberg Municipality to undertake an Environmental Assessment to address the recreational use of Jet Ski's off the Still Bay coastline. The tasks included research and compilation (primary author) of an Environmental Assessment Report to address and advise on the use of jetski's off the Still Bay coastline, including the undertaking of a public participation process.
- 2002      Project Staff      **Swartstomp Resort Development, Theewaterskloof Dam, Western Cape, South Africa:** Appointed by Mr C.J. Roux to undertake an EIA for the development of Swartstomp resort. The tasks included the compilation of an Application Form and Scoping Checklist and assisting with the public participation process.

**2) Independent Review/ Specialist Review & Environmental Advisory services:**

2018	Independent Review Specialist	<p><b>Independent review of the Basic Assessment Report for the proposed Evergreen Lake Michelle Lifestyle Retirement Village, Remainder of Erf 3823, Noordhoek, Cape Town</b></p> <p>Appointed by a key stakeholder to undertake an independent review of the Pre-Application Basic Assessment Report for the project. Tasks and responsibilities included determining the adequacy of the environmental assessment procedures, processes, methods and reports utilized to inform the assessment, and to assess compliance with relevant enviro-legal statutory requirements and to determine whether the all relevant information necessary for decision-making was included within the reporting. The Terms of Reference for the Review included ensuring that the clients concerns regarding the proposed development were adequately captured and responded to within the Reporting. Responsible for co-authoring the Independent Review Comment.</p>
2017 - 2018	Independent Review Specialist	<p><b>Independent Review of the proposed mix use development of erf 173712, Cape Town, Granger Bay Precinct and associated sea defence works, V&amp;A Waterfront, Cape Town</b></p> <p>Appointed by a key stakeholder to undertake an Independent Specialist Review, in consultation with Nicholas Smith Attorneys, of various iterations of EIA Reporting produced by the Applicants EAP. Tasks and responsibilities included determining the adequacy of the environmental assessment procedures, processes, methods and reports utilized to inform the assessment, and to assess compliance with relevant enviro-legal statutory requirements and to determine whether the all relevant information necessary for decision-making was included within the EIA reporting. The Terms of Reference for the Review included ensuring that the clients concerns regarding the proposed development were adequately captured and responded to within the reporting. Responsible for co-authoring the Independent Review Comment, which resulted in significant revisions to the Applicants original reporting and development proposals.</p>
2014 – 2015	Independent Review Specialist	<p><b>The independent review of thirty-two Basic Assessment Reports for proposed borrow pits for the supply of materials for the re-gravelling and maintenance of various roads in the Western Cape:</b></p> <p>Appointed by Aurecon, the Applicants EAP, to undertake the independent peer review of 32 separate draft Final Basic Assessment Reports in respect of proposed gravel borrow pits dispersed widely across various areas of the Western Cape province. Tasks and responsibilities included development of a review checklist, determining the adequacy of environmental assessment procedures, processes, methods and reports utilized to inform each assessment, and to assess compliance with the relevant enviro-legal statutory requirements and to determine whether all the relevant information necessary for decision-</p>

making was included within the reporting. Responsible for co-authoring each of the 32 Independent Review Reports.

- 2011 Specialist Reviewer **Environmental Advisor and specialist reviewer for Treasure the Karoo Action Group: Hydraulic Fracturing in the Karoo, South Africa:**  
Appointed by "Treasure the Karoo Action Group" to undertake the specialist Environmental Review (in association with Havemann Inc. Attorneys) of Applications by Shell Exploration Company B.V., Bundu Gas and Oil Exploration (Pty) Ltd and Falcon Oil and Gas Limited, to undertake shale gas exploration in the Karoo, via Seismic Survey and Hydraulic Fracturing ("Fracking"). Tasks and responsibilities included undertaking an extensive international literature review in order to gain an understanding of the relevant processes and technology, as well as an understanding of potential risks and best practice management methods. The terms of reference for the appointment included the compilation of Terms of References for independent specialist comment from consultants in the fields of geohydrology and public health, determining the adequacy of environmental assessment procedures, processes, methods and reports utilized to inform the assessment, and to assess compliance with relevant enviro-legal statutory requirements and to determine whether all the relevant information necessary for decision-making was included within the reporting. Responsible for co-authoring the Independent Review Comments.
- 2011 Specialist Reviewer **Mothae Diamond Mine, North-Eastern Lesotho:**  
Appointed by Amathemba Environmental Management Consulting CC to undertake the external review of environmental reports associated with the application for environmental authorization to undertake the proposed development.
- 2011 Environmental Advisor **Upgrading of Wellington Wastewater Treatment Works, Western Cape:**  
Provision of environmental advisory services to Aurecon's wastewater engineers and the appointed environmental consultants. Tasks and responsibilities included the drafting of specialists' terms of references and review of specialist reports.

### 3) Assessment of Water Resource Developments and Catchment Management:

- 2009 Project staff/  
Environmental Assessment Practitioner **C.A.P.E. Olifants Doorn Catchment Management Agency Project, Western Cape, South Africa:** Appointed by CapeNature to compile the catchment management strategy water resource protection sub-strategy for the Olifants-Doorn catchment. I was a contributing author.

2006 - 2009	Project staff/ Environmental Assessment Practitioner	<b>Raising of Clanwilliam Dam in the Western Cape, South Africa</b> The Department of Water Affairs and Forestry initiated a study to consider the feasibility of raising the Clanwilliam Dam whilst undertaking required remedial works. The study included a comprehensive options assessment to identify the preferred suite of development options within the Water Management Area (WMA). The study verified the technical, environmental, social, economic and financial viability of raising the Clanwilliam Dam and determined the optimal dam height. Alternatives for increasing supply volumes were investigated in relation to social development needs in the region. This study included an extensive public consultation and an EIA process.
2004 - date	Assistant Project Manager	<b>Southern High Confidence Reserve Determination: Project Management, Western and Eastern Cape, South Africa:</b> The Resource Directed Measures Directorate of the Department of Water Affairs and Forestry (DWAF) is tasked with the responsibility of determining Reserve requirements. The Reserve refers to the quality and quantity of water that is required to sustain aquatic ecosystems and basic human needs. The Olifants/ Doring and the Kromme/ Seekoei are such stressed catchments that were selected for High Confidence Reserve Determinations. DWAF appointed Ninham Shand to manage the Southern High Confidence Reserve Determination studies on their behalf. The project entailed undertaking administrative and financial control of the technical service providers as well as review of all deliverables.

**4) Environmental Management Plans/ Programmes & Environmental Compliance Monitoring & Auditing:**

2018 - 2019	Environmental Assessment Practitioner	<b>Proposed cultivation of virgin soil, construction of a dam and associated infrastructure on Portion 27 and Portion 17 of Farm No. 466, Scherpenheuvel, Western Cape Province</b> Compilation of the Environmental Management Programme (primary author).
2017 - 2019	Environmental Assessment Practitioner	<b>Proposed raising of Ou Brakfontein Dam near Citrusdal, Western Cape Province</b> Compilation of the Environmental Management Programme (primary author).
2017 - 2019	Environmental Assessment Practitioner	<b>Proposed upgrade of a low level bridge over the Olifants River, near Citrusdal, Western Cape Province</b> Compilation of the Environmental Management Programme (primary author).

2017 - 2019	Environmental Assessment Practitioner	<b>Wind Energy Facility on the Eastern Plateau (North) near De Aar, Northern Cape Province</b> Amendment of the approved Environmental Management Programme (EMPr) (primary author).
2017 - 2019	Environmental Assessment Practitioner	<b>Longyuan Mulilo Maanhaarberg Wind Energy Facility near De Aar, Western Cape Province</b> Amendment of the approved Environmental Management Programme (EMPr) (contributing author).
2017	Environmental Assessment Practitioner	<b>Proposed raising of Ruimsig Dam and expansion of agricultural areas, on Remainder of Portion 56 and Portion 93 of the Farm De la Haye No. 92, Near De Doorns, Western Cape</b> Compilation of the Environmental Management Programme (contributing author).
2012 - 2016	Environmental Assessment Practitioner & Project Manager	<b>Proposed Kleinberg Dam Scheme, Hex Valley, Western Cape, South Africa:</b> Compilation of the Environmental Management Programme (contributing author).
2015 - 2016	Environmental Assessment Practitioner	<b>Proposed raising of Osplaas Dam, Hex Valley, Western Cape:</b> Compilation of the Environmental Management Programme (contributing author).
2015 - 2016	Environmental Assessment Practitioner	<b>Proposed cultivation of virgin soil on Remainder of Farm Monte Vista No. 43, Hex Valley, Western Cape:</b> Compilation of the Environmental Management Programme (contributing author).
2013- 2015	Environmental Assessment Practitioner	<b>Proposed upgrading of a road leading to the Mossgas Quay, Port of Saldanha, Western Cape:</b> Compilation of the Environmental Management Programme (contributing author).
2008- 2009	Environmental Control Officer	<b>Upgrading and extension of the Ben Schoeman Dock at Cape Town Harbour, Western Cape, South Africa:</b> Appointed by HMG-JV to provide the services of Environmental Control Officer for the upgrade and extension (including deepening) of the Ben Schoeman Dock at Cape Town Harbour. The primary duties and responsibilities included undertaking regular environmental audits of the project activities, and ultimately to monitoring compliance with the Record of Decision and Environmental Management Plan.

2007	Project Staff/ Environmental Assessment Practitioner	<b>Upgrading of the Darling Wastewater Treatment Works, Darling, Western Cape, South Africa:</b> Appointed by the Swartland Municipality to compile the Operational Phase Environmental Management Plan for the upgrading of the Darling WWTW (primary author).
2007 to 2009	Environmental Control Officer	<b>Phase 1B expansion of the iron ore facility at the Port of Saldanha, Saldanha Bay, Western Cape, South Africa:</b> Appointed by Transnet Projects to provide the services of Independent Environmental Control Officer for Phase 1B expansion of the iron ore facility at the Port of Saldanha. My primary duties and responsibilities included undertaking regular environmental audits of the project activities, to act as secretariat for the monthly Environmental Monitoring Committee (EMC) meetings, to report back monthly at the EMC meetings regarding the status of Environmental Progress of Phase 1B, and ultimately to monitoring compliance with the Record of Decision and Environmental Management Plan.
2006	Senior Environmental Practitioner & Environmental Control Officer	<b>Upgrading of the Darling Wastewater Treatment Works, Darling, Western Cape, South Africa:</b> Compiled (primary author) construction phase Environmental Management Plan (EMP) for the upgrading of the Darling WWTW, as well as developing the Environmental Awareness Training Course for construction personnel and monitoring compliance with EMP (i.e. ECO).
2006	Senior Environmental Practitioner & Environmental Control Officer	<b>Proposed Upgrading of the Bonnievale Wastewater Treatment Works, Bonnievale, Western Cape, South Africa:</b> Compiled (primary author) the EMP for the upgrading of the Bonnievale WWTW, as well as developing the Environmental Awareness Training Course for construction personnel and monitoring compliance with Environmental Authorisation and EMP (i.e. ECO duties).
2005 - 2006	Senior Environmental Practitioner & Environmental Control Officer	<b>Upgrading of the Hex River Valley Weirs, Hex River Valley, Western Cape, South Africa:</b> Compiled the EMP (primary author) for the upgrading of the Hex River Valley Weirs, as well as developing the Environmental Awareness Training Course for construction personnel and monitoring compliance with Environmental Authorisation and EMP (i.e. ECO duties).
2005	Senior Environmental Practitioner	<b>Proposed Construction of an Effluent Pipeline between the New Town Pump Station in Wellington and the Paarl Wastewater Treatment Works, Paarl, Western Cape, South Africa:</b> Compiled the EMP (primary author) for the construction of the effluent pipeline between the New Town Pump Station (Wellington) and the Paarl WWTW.

2005	Environmental Control Officer	<b>Upgrading of Bulk Water Supply Infrastructure at Mier, Northern Cape, South Africa:</b> Developing and presenting the Environmental Education Course for site staff and monitoring compliance with the EMP for the construction of the reservoirs at Klein Mier and Groot Mier.
2005	Environmental Control Officer	<b>Upgrading of Bulk Water Supply Infrastructure at Vanderkloof, Northern Cape, South Africa:</b> Developing and presenting the Environmental Education Course for site staff and monitoring compliance with the EMP for the construction phase of the project.
2005	Environmental Control Officer	<b>Upgrading of Bulk Water Supply Infrastructure at Vanwykslvei, Northern Cape, South Africa:</b> Developing and presenting the Environmental Education Course for site staff and monitoring compliance with the EMP for the construction phase of the project.
2005	Environmental Control Officer	<b>Construction of Water Reticulation at Augrabies, Northern Cape, South Africa:</b> Developing and presenting the Environmental Education Course for site staff and monitoring compliance with the EMP for the construction phase of the project.
2004 - 2005	Independent Environmental Officer	<b>Tygerfalls Mixed Use Development, Bellville, Western Cape, South Africa:</b> Facilitate compliance by a private developer, Melvaphanda Property Holdings, with the environmental requirements for the activities associated with the realignment of the Elsieskraal River in Bellville. This entailed application monitoring compliance with the Environmental Authorisation and EMP for the project.
2004	Project Staff	<b>Rivers Edge Resort, Bonnievale, Western Cape, South Africa:</b> Appointed by Toekomsbeleggings Nr. 1 (Edms) Bpk to compile an Environmental Management Plan (contributing author) for the development of the River's Edge Resort development on the Breede River.
2004	Project Staff	<b>Villiersdorp Cemetery, Villiersdorp, Western Cape, South Africa:</b> Appointed by the Theewaterskloof Municipality to compile an Environmental Management Plan (contributing author) for the development of the new Villiersdorp Cemetery.
2004	Project Staff	<b>Draaihoek Guesthouse, Piketberg, Western Cape, South Africa:</b> Appointed by Draaihoek (Pty) Ltd. to compile an Environmental Management Plan (contributing author) for the construction phase for the development of the Draaihoek Guesthouse.



- 2004 Project Staff **La Pastorale Residential Development, Stellenbosch, Western Cape, South Africa:** Appointed by Mr C.M. Spottiswoode to compile an Environmental Management Plan (contributing author) for the development of the La Pastorale residential estate.
- 2004 Project Staff **Swartstomp Resort Development, Theewaterskloof Dam, Western Cape, South Africa:** Appointed by C.J. Roux to compile an Environmental Management Plan (contributing author) for the development of the Swartstomp resort on the Theewaterskloof Dam.
- 2002 Project Staff **Bredasdorp, Struisbaai and Napier Groundwater Development Programme:** Appointed by the Cape Agulhas Municipality to compile an Environmental Management Plan (contributing author) for the proposed Bredasdorp, Struisbaai and Napier Groundwater Development Programme (drilling, pump testing and operation of new boreholes).

#### 5) Environmental Planning:

- 2006 Project Manager **West Coast Integrated Environmental Programme, Western Cape, South Africa:** Appointed by the West Coast District Municipality to compile (contributing author) an Integrated Environmental Programme for the West Coast Region.

#### 6) Business/Corporate/ Education Environmental Services:

- 2010 Project Manager **Information document on environmental legislation and the associated implications for the Department of Civil Engineering Services, Drakenstein, Western Cape:** Appointed by the Drakenstein Municipality to compile (contributing author) an information document on environmental legislation and the associated implications for the Drakenstein Municipality's Department of Civil Engineering Services, including the development of decision support tools.
- 2009 Project Staff **Environmental education for the Drakenstein Municipality and their civil engineering service providers:** Appointed by the Municipality to provide environmental training to the Municipality's engineers and environmental personnel, as well as their consulting civil engineers, regarding the changes to environmental legislation, including the NEMA EIA regulations and Waste Act, and the implications of such changes in legislation for the Municipality's proposed civil engineering projects.
- 2004 Project Staff **Pennypinchers Timber Processes, Cape Town, Western Cape, South Africa:** Appointed by the Peter Allan Building Material Trust to compile an Environmental Management System (contributing author) for the upgrade of the proposed Pennypinchers Timber Treatment Plant in Blackheath.

2003            Project Staff            **Ashton – Montagu Water Pipeline, Western Cape, South Africa:** Appointed by the Breede River Winelands Municipality to compile an Environmental Management System (contributing author) for the installation, operation and rehabilitation phases of the Ashton-Montagu water pipeline, environmental awareness training for the site staff and monitoring.

**7) Project Management:**

2004-            Asst. Project            **Southern High Confidence Reserve Determination: Project**  
2006            Manager            **Management, Western and Eastern Cape, South Africa:** The Department of Water Affairs appointed Ninham Shand to manage the Southern High Confidence Reserve Determination studies (i.e. for the Olifants/ Doring and the Kromme/ Seekoei catchments) on their behalf. The project entailed undertaking administrative and financial control of the technical service providers as well as review of all deliverables. Nicole Holland acted as assistant project manager for the Olifants/ Doring component of the study.

**COUNTRIES OF WORK EXPERIENCE:**

South Africa, United Kingdom

**EDUCATION:**

- BSc (Environmental and Geographical Science), University of Cape Town, South Africa, 1996.
- BSc (Hons) (Environmental and Geographical Science), University of Cape Town, South Africa, 2000.
- Environmental Impact Assessment and Management Course, University of Stellenbosch, South Africa, June 2002.

**EMPLOYMENT RECORD:**

2017 – present    Director, Holland Group (Pty) Ltd, trading as Holland & Associates Environmental Consultants, Cape Town, South Africa

2011 - 2017       Self Employed, trading as Holland & Associates Environmental Consultants, Cape Town, South Africa

2004 - 2011       Senior Environmental Practitioner, Aurecon (previously Ninham Shand Consulting Services), Cape Town, South Africa

2002 - 2004       Environmental Scientist, Withers Environmental Consultants, Stellenbosch, South Africa

- 2001 - 2002      Senior Applications Analyst, Geosense Limited, Cape Town, South Africa
- 2000              Honours student, Department of Environmental and Geographical Science,  
University of Cape Town, Cape Town, South Africa
- 1998 - 1999      Junior Project Accountant, Warburg Dillon Read (Union Bank of Switzerland),  
London, United Kingdom

**LANGUAGES:**

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

**REFEREES:**

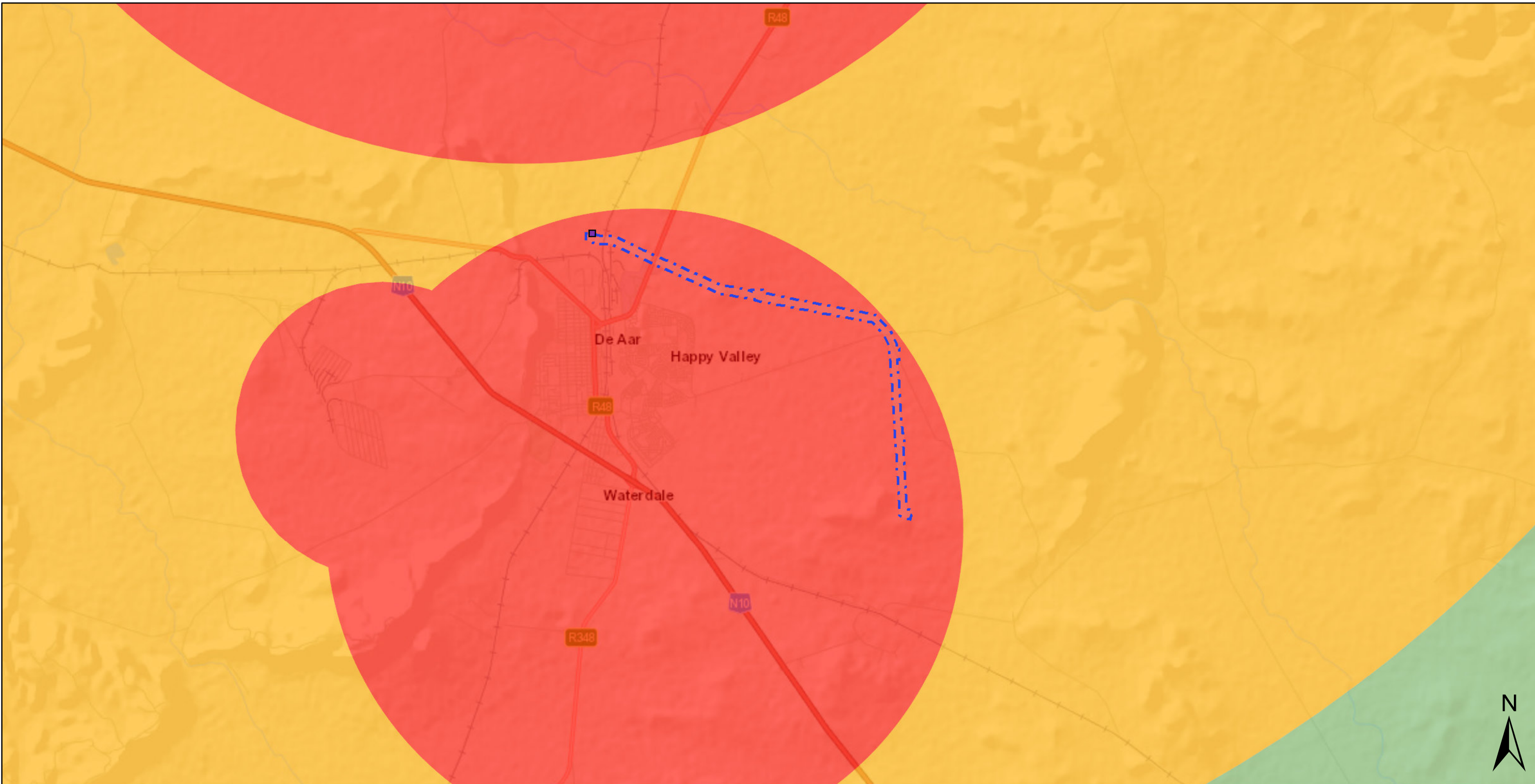
Ms Karen Shippey (Director: Sustainability (Western Cape Provincial Government))  
Tel: 021483 0776

Mr Brett Lawson (Independent Environmental Consultant)  
Tel: 083 4570557/brett@lawsonenvironmental.co.za

**Appendix B: Map of the proposed development footprint overlaid on the Civil Aviation sensitivity map generated by the screening tool**



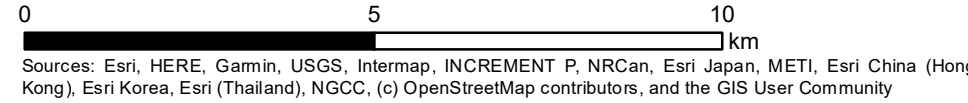
# Screening Report CAA Map



27 April 2022

- Legend**
- Paarde Valley PV2 Substation
  - Site Area
  - EIA Application Development Footprint
  - EIA Application Site
  - National Jurisdiction Area

- Civil Aviation Combined Sensitivity**
- Very High
  - High
  - Medium
  - Low



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National Department of Environmental Affairs,  
Government of South Africa.

## **Appendix C: Comment from the South African Civil Aviation Authority (SACAA)**

**From:** Lizell Stroh <StrohL@caa.co.za>  
**Sent:** 11 May 2022 14:45  
**To:** anja@hollandandassociates.net  
**Cc:** Adelle Odendaal; Evelyn Shogole; Doris Khoza; Simphiwe Masilela  
**Subject:** RE: Request for comment: Paarde Valley PV2 Grid Connection  
**Attachments:** CAA\_2021\_11\_332.pdf; Revised CAA\_2021\_11\_332 Letter.pdf; FW: Paarde Valley PV 2 Solar Energy Facility Powerlines - CAA Assessments (6.97 MB)

Good day Anja, the respected approval was Granted towards the Developer.

Could you kindly confirm that this would be the approval Relevant to the project enquired.

Kind regards



**Lizell Stroh**  
**Obstacle Inspector**  
**Aerodrome Infrastructure**  
**Aviation Infrastructure**  
**Tel:** +27 11 545 1232 | **Mobile:** +27 083 461 6660  
**Email:** [StrohL@caa.co.za](mailto:StrohL@caa.co.za) | [www.caa.co.za](http://www.caa.co.za)  
Foll us on    



**“We spend most of our waking lives at work, so it's important that we do what we love and love what we do.”**

Richard Branson

---

**From:** Canny Mosebjadi Mothapo <MothapoC@caa.co.za>  
**Sent:** Wednesday, 11 May 2022 12:48  
**To:** Lizell Stroh <StrohL@caa.co.za>; Doris Khoza <KhozaD@caa.co.za>; Simphiwe Masilela <Masilelas@caa.co.za>  
**Cc:** Adelle Odendaal <OdendaalA@caa.co.za>; Evelyn Shogole <ShogoleE@caa.co.za>  
**Subject:** FW: Request for comment: Paarde Valley PV2 Grid Connection

---

**From:** [anja@hollandandassociates.net](mailto:anja@hollandandassociates.net) <[anja@hollandandassociates.net](mailto:anja@hollandandassociates.net)>  
**Sent:** Wednesday, 11 May 2022 11:46  
**To:** Obstacles <[Obstacles@caa.co.za](mailto:Obstacles@caa.co.za)>  
**Cc:** Lizell Stroh <[StrohL@caa.co.za](mailto:StrohL@caa.co.za)>; 'Nicole Holland' <[nicole@hollandandassociates.net](mailto:nicole@hollandandassociates.net)>;

[tilly@hollandandassociates.net](mailto:tilly@hollandandassociates.net)

**Subject:** Request for comment: Paarde Valley PV2 Grid Connection

Good day,

I trust this e-mail finds you well.

I have attached a letter regarding a request for comment by the CAA on the Paarde Valley PV2 132 kV grid connection application. I have also attached a shapefile of the proposed project.

Kindly confirm receipt of this e-mail and advise if you require any further information in order to provide comment on the above-mentioned project?

I look forward to hearing from you!

Kind regards,

Anja Albertyn (MSc, Pr. Sci. Nat.)

**Holland & Associates**  
 Environmental Consultants

m: +27 76 265 8933  
e: [anja@hollandandassociates.net](mailto:anja@hollandandassociates.net)  
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a: PO Box 31108, Tokai, 7966

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## **Paarde Valley PV 2 (Pty) Ltd**

Top Floor- Golf Park 4- Raapenberg Road- Mowbray  
Cape Town  
Western Cape  
7700

### **Enquiries: L Stroh**

Tel. 011 545 1232

[strohl@caa.co.za](mailto:strohl@caa.co.za)

**Ref. CA8/2/De Aar**

**CAA\_2021\_11\_332**

**09 March 2022**

Attention: Warren Morse

### **Conditional Approved: Proposed Paarde Valley PV 2 Solar Photovoltaic Power Energy Facility situated near De Aar in the Northern Cape Province.**

After evaluating the site position and reviewing the information received 08 November 2021, the SACAA has **no objection** to the proposed Energy Facility subject to a maximum height of 10m above ground level. Other facilities would be at a height of 24m on the solar site, Transmission/ Power line proposed at 32m.

The above statement is conditional to the developer, providing the SACAA with the "as built" parameters of the facility, which includes the height of the pylon structures conveying power generated by the facility.

This conditional approval is valid for 5 years from the date of this letter.

Note that this SACAA letter of no objection does not substitute or replace other approvals which may be required by the applicant.

Yours truly,

**Lizell Stroh**

**Obstacle Inspector**

**PANS-OPS Section**

**Air Navigation Services Department**

**Tel:** +27 11 545 1232 | **Mobile:** +27 083 461 6660

**Email:** [Strohl@caa.co.za](mailto:Strohl@caa.co.za) | [www.caa.co.za](http://www.caa.co.za)



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+27 11 545 1451

E-mail Address:  
obstacles@caa.co.za  
Website Address:  
www.caa.co.za

**OBSTACLE APPROVAL**

CAA Obstacle ID

CAA\_2021\_11\_332

**APPLICANT**

Applicant Name Mulilo Renewable Project Developments (  
Contact Person Kai Brown  
Cell Nr 073 303 9699  
Tel Nr 021 685 3240  
Email kai@mulilo.com  
VAT Nr 4410 265 195  
Address Top Floor- Golf Park 4- Raapenberg  
City Cape Town  
Province Western Cape  
Postal Code 7700

**OWNER**

Owner Name Paarde Valley PV2 (Pty) Ltd  
Contact Person Warren Morse  
Cell Nr 083 760 9586  
Tel Nr 021 685 3240  
Email warren@mulilo.com  
Application Date 2021/11/08 Received Date 2021/12/07  
Application Type  New  Shared  Replacement  
**Attachments:**  GIS/Google File  Survey Report  
 Plan/Eng Drawing  Other

**DETAILS OF PROPOSED STRUCTURE**

Type of Structure Other Construction Start Date 2023/01/31  
Site Name Paarde Valley PV2 Construction End Date 2024/01/31  
Site ID Paarde Valley PV2  
LAT (Degrees) 30 LAT (Minutes) 37 LAT (Seconds) 0 Jib/Guywire (m)  
LONG (Degrees) 24 LONG (Minutes) 0 LONG (Seconds) 0 Datum WGS84  
Site Elevation (m) 1253 Notes: Coord Data Source Google Earth  
Substructure Height (m) 0 Solar PV power plant at a max  
Superstructure Height (m) 10 height of 24m with a  
Structure Elevation (m) 1263 transmission line at a max  
height of 32m. Elevation Data Source Google Earth  
Other (specify)  
Other (Specify)

**APPROVAL STATUS:** CONDITIONALLY APPROVED

**Note:** 1. Conditional Approval only valid for 5 years from date of signature.  
2. Final approval subject to applicant/owner providing 'As-Built' data.

**Approval Conditions:**

- No Markings  
 Day Markings  
 Night Markings  
 Day/Night Markings  
 UPS  
 Other/Special

**Other/Special Conditions:**

Find letter attached.

FOR THE SACAA

SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Name: *JB Striel*

Date: \$' \$\$!' "%" +



# Holland & Associates



Environmental Consultants

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

South African Civil Aviation Authority (SACAA)

Per Email: [obstacles@caa.co.za](mailto:obstacles@caa.co.za)

11 May 2022

Attention: Lizell Stroh

Dear Ms Stroh,

## **REQUEST FOR COMMENT ON THE PROPOSED PAARDE VALLEY SOLAR PV2 132 KV GRID CONNECTION TO VETLAAGTE MAIN TRANSMISSION SUBSTATION FOR INCLUSION IN THE BASIC ASSESSMENT PROCESS**

### **1 Introduction**

Holland & Associates Environmental Consultants has been appointed to undertake the requisite application for environmental authorisation for a proposed grid connection, in accordance with the National Environmental Management Act (NEMA) (No. 107 of 1998) EIA Regulations (2014), as amended. The application for environmental authorisation will require an assessment (Basic Assessment process) of the proposed grid connection corridor.

The National Screening Tool Report was run for the proposed Paarde Valley PV2 Grid Connection corridor on 15 December 2021. The report indicated a “High sensitivity” for the Civil Aviation theme and identified the need for a Civil Aviation Assessment in line with the *Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Civil Aviation Installations* (No. 320 of Government Gazette No. 43110, published 20 March 2020). The designated “High sensitivity” appears to be a result of the proposed project being “*Within 8 km of other civil aviation aerodrome*” and “Medium sensitivity” is designated as a result of the proposed project being “*Within 5 km of an air traffic control or navigation site*” and “*Between 15 and 35 km from a civil aviation radar*”. Please refer to Appendix A to see a map of the proposed project and the Civil Aviation sensitivities identified by the Screening Tool. A Shapefile of the proposed grid connection has also been attached to the email with this letter.

Considering the “High sensitivity” identified for this theme, the protocol requires a Compliance Statement to be completed for the proposed project with respect to the potential impacts on Civil Aviation. One of the requirements of the Compliance statement is “*a comment, in writing, from the South African Civil Aviation Authority (SACAA), which may include inputs from the Obstacle Evaluation Committee (OEC), if appropriate, confirming no unacceptable impact on civil aviation installations*”. On this basis, Holland & Associates Environmental Consultants (H&A), on behalf of Paarde Valley PV2 (Pty) Ltd (hereafter referred to as the Applicant) kindly request comment

from SACAA on the proposed project. The project background and description are described below in Section 2.

## **2 Background & Project Description**

Environmental Authorisation (EA) for 150 MW Paarde Valley PV2 was granted by the Department of Environmental Affairs (DEA) (now known as the Department of Forestry, Fisheries and the Environment (DFFE)) on 7 September 2012, in terms of the NEMA EIA Regulations (2010). The authorised project includes the construction of a PV solar energy facility to generate approximately 75 – 150 MW on the aforementioned farm, as well as 132 kV / 220 kV overhead transmission lines and associated infrastructure (access roads, water supply infrastructure, stormwater infrastructure, internal access roads, buildings and fencing). Since the EA has been granted, it has undergone four amendments and the EA currently expires on 7 September 2022.

The currently authorised 132kV/ 220kV grid connection for Paarde Valley PV2 is routed from the Paarde Valley PV2 facility to the De Aar substation. However, Eskom has grid capacity constraints in the Northern Cape, and at certain lines and on certain substations. Eskom does not have capacity for the Paarde Valley PV2 to connect at the De Aar substation, accordingly the Applicant wishes to amend the authorised grid connection (realignment and termination point) and create a separate EA for the ESKOM's self-build components (substation & gridline).

Paarde Valley PV2 (Pty) Ltd (hereafter referred to as the Applicant) proposes the construction of a 132 kV, double circuit, overhead powerline (OHPL) grid connection from the authorised on-site substation and switching station at Paarde Valley PV2 to Vetlaagte Main Transmission Station (MTS) (which is currently undergoing its own EA application process). The OHPL is proposed to be approximately 12.7 km in length, and is located in the Strategic Transmission Central Corridor<sup>1</sup>. A 200 m corridor (100 m of each side of the line) is to be assessed, as per the provided kml. The final OHPL servitude will be registered as 31 m but during the design development process a corridor of 200 meters is required to allow for minor tower position adjustments. The exact pylon locations will be determined by the outcome of the specialist's investigations, and engineering considerations. On average there will be 4 - 5 towers per km, so that the route will consist of an approximately 40 towers. The teams constructing the OHPL often use cranes and these will fit into an area with a maximum radius of approximately 30 m around the base of each tower, with the final footprint being relatively small. The line will have a capacity of 132kV and will make use of either steel monopole or steel lattice structure in line with Eskom required specifications.

A monopole self-supporting structure has a maximum base of 5 m in diameter above the ground. In some situations the structures have stays. These would fall into the area with a maximum radius of 30 meters, but the stays themselves are hardly exposed at ground level, with only small steel rods protruding from the ground. Lattice towers have a bigger footprint as each has four legs that are a maximum of 15 m apart so that the final footprint would be approximately 15 m x 15 m. The height of either pylon structure will be up to 32 m.

---

<sup>1</sup>No. 113 of Government Gazette No. 41445 published 16 February 2018

The project will also include the switching station component of the authorised Paarde Valley PV2 on-site substation, with an approximate footprint area of 100 m x 100m, and a feeder bay at the Vetlaagte MTS with a capacity of 132 kV, as this needs to be handed over to Eskom with the grid connection self build works once constructed.

In summary, the infrastructure associated with the proposed Grid Connection works for the Paarde Valley PV2 project (and to be handed back to Eskom following construction), includes the following:

- A 132kV, double circuit Overhead Power Line (OHPL) from the Switching Station connecting to the proposed Vetlaagte Main Transmission Substation (MTS)
- 132kV Feeder bay at the Vetlaagte MTS
- Onsite Switching Station (SwS), adjacent to the authorised IPP 132 kV substation. (approximately 100 m x 100 m combined)

The technical details include:

Overhead Powerline:

- Height of pylons Up to 32m
- Type of poles/ pylons to be used: Double Circuit configuration. The alternatives under consideration and to be assessed include Steel lattice or Monopole structures in line with Eskom required specifications
- Transmission line capacity 132kV
- OHPL Service Road (to lie within the OHPL servitude)
  - Length of OHPL service road(s) – Twin tracked service road following line route
  - Width of OHPL service road(s) 6 m

Switching Station:

- Footprint of approximately 50 m – 100 m x 100 m adjacent to IPP Substation
- Area occupied by both permanent and construction laydown areas +-4 Hectares (for grid works only)
- Area occupied by buildings +-1.0 Hectares
- Switching Station Access Road (separate access servitude from the nearest public road to the Switching Station yard)
  - Compacted gravel
  - Length of access road: +- 2.34 km (see attached kmz. file for the route)
  - Width of access road: 8 m .
- Security fencing height: 2.4 m
- Type of fencing: Eskom palisade fencing + chainlink fencing for temporary works
- Control building, relay room, battery room, Generator, storage warehouse water tanks, ablutions
- Laydown area
- Capacity of on-site substation 132kv

The OHPL and Switching station are required to connect the Paarde Valley PV2 Solar farm to the Eskom National Grid. The route selected follows boundary lines and / or existing OHPL routes so as to limit disruption to current farming activities as much as possible.

We trust that the above information provided is adequate for CAA to provide comment on the proposed project for inclusion in the Basic Assessment process. Should further information be required, please do not hesitate to contact the undersigned.

Yours sincerely,



**NICOLE HOLLAND** (Reg. EAP (EAPASA); BSc Hons, Pr.Sci.Nat)

For: Holland & Associates - Environmental Consultants

## **APPENDIX A**

Map of the proposed Project & Civil Aviation sensitivities