



**Appendix 1:  
Title Deeds / SG Diagrams**



Prepared by me:

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CONVEYANCER  
VAN DER WESTHUIZEN G

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R500,00

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## DEED OF TRANSFER

DR HARDUS VAN DER WESTHUIZEN ING  
51 DE KOCK STREET  
VRYBURG  
8601  
PO BOX 2001 VRYBURG 8600  
Telephone (053)927-5222/2300/2058/9

2001-03-22

*Handwritten signature*

BE IT HEREBY MADE KNOWN :

THAT GERHARDUS VAN DER WESTHUIZEN  
appeared before me, REGISTRAR OF DEEDS at VRYBURG, the said Appearer,  
being duly authorised thereto by a Power of Attorney granted to him/her by

IAN LAKE BLACKWOOD  
Identity Number 311202 5014 08 5  
Married out of community of property

which said Power of Attorney is dated 28th February 2001  
and signed at VRYBURG

AND the said Appearer declared that his/her principal the said IAN LAKE BLACKWOOD had on 28 February 2001 truly and legally sold and that he, the said Appearer in his/her capacity aforesaid, did by these presents cede and transfer to and on behalf of:

The Trustees for the time being of EDINBURGH TRUST  
No : IT 8507/99

its successors in title or assigns in full and free property, the following property, namely:

1. PORTION 1 (EDINBURGH No. 1) OF THE FARM EDINBURGH  
735 SITUATE in the Registration Division HN, North-West  
Province

MEASURING 1 722,4878 (ONE THOUSAND SEVEN HUNDRED  
AND TWENTY TWO COMMA FOUR EIGHT SEVEN EIGHT) Hectares

FIRST TRANSFERED by Deed of Transfer No 13/1935 with Diagram relating thereto and HELD by Deed of Transfer No 412/1960

**SUBJECT TO:-**

The conditions contained in the Deed of Grant F.T. 738 - V.Q. 7/26 made in favour of ARTHUR DOUGLASS on 24th October, 1892, No. V whereof reads as follows:-

- V. "That the rights of the Proprietor shall not extend to any deposits of gold, silver, platinum or precious stones, which may at any time be or be discovered on the land hereby granted and the right of mining for gold, silver, platinum or precious stones is reserved by the Government under such regulations as shall from time to time be established by law."

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2. PORTION 1 OF THE FARM RETREAT 671 SITUATE in the  
Registration Division IN, North-West Province

MEASURING 770,8788 (SEVEN HUNDRED AND SEVENTY COMMA  
EIGHT SEVEN EIGHT EIGHT) Hectares

FIRST REGISTERED by Deed of Consolidated Titel No 666/1968 with Diagram No  
2792/68 relating thereto and HELD by Deed of Transfer No T 667/1968

**SUBJECT TO:-**

The conditions contained in Deeds of Grant (F.T. 1721 - V.Q. 14/7 made  
in favour of EDWARD TUETTE DALTON CHAMPION and PIETER  
HIRSCHMAN VANDER HOFF and PIETER ULRICH de MALANDER FISCHER  
trading under the style or firm of VAN DER HOFF & FISCHER on the 28th  
March 1899; and (F.T. 737 - V.Q. 7/25) made in favour of HENDRIK  
HUYSER Senior on the 24th October 1892, No. V whereof reads as  
follows:-

- V. "That the rights of the Proprietor shall not extend to any  
deposits of gold, silver, platinum or precious stones, which  
may at any time be or be discovered on the land hereby  
granted and the right of mining for gold, silver, platinum or  
precious stones is reserved by the Government under such  
regulations as shall from time to time be established by  
law."

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3. PORTION 2 (ERICA) OF THE FARM FRANKFORT 672  
SITUATE in the Registration Division IN, North-West  
Province

MEASURING 446,1703 (FOUR HUNDRED AND FORTY SIX  
COMMA ONE SEVEN ZERO THREE) Hectares

FIRST TRANSFERED by Deed of Transfer No 7487 with Diagram relating thereto  
and HELD by Deed of Transfer No T 412/1960

SUBJECT TO:-

The conditions contained in the Deed of Grant F.T. 737 - V.Q. 7/25 made  
in favour of HENDRIK HUYSER Senior on 24th October, 1892, No. V  
whereof reads as follows:-

- V. "That the rights of the Proprietor shall not extend to any  
deposits of gold, silver, platinum or precious stones, which  
may at any time be or be discovered on the land hereby  
granted and the right of mining for gold, silver, platinum or  
precious stones is reserved by the Government under such  
regulations as shall from time to time be established by  
law."

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4. REMAINDER OF THE FARM EDINBURGH 735 SITUATE in  
the Registration Division HN, North-West Province

MEASURING 429,5203 (FOUR HUNDRED AND TWENTY NINE  
COMMA FIVE TWO ZERO THREE) Hectares

FIRST TRANSFERED by Deed of Grant F.T. 738 - V.Q. 7/26 with Diagram relating  
thereto and HELD by Deed of Transfer No T 412/1960

**SUBJECT TO:-**

The conditions contained in the aforesaid Deed of Grant, No. V whereof reads as  
follows:-

- V. "That the rights of the Proprietor shall not extend to any deposits  
of gold, silver, platinum or precious stones, which may at any time  
be or be discovered on the land hereby granted and the right of  
mining for gold, silver, platinum or precious stones is reserved by  
the Government under such regulations as shall from time to time  
be established by law."

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5. REMAINDER OF THE FARM FRANKFORT 672 SITUATE in  
the Registratio Division IN, North-West Province

MEASURING 346,0108 (THREE HUNDRED AND FORTY SIX  
COMMA ZERO ONE ZERO EIGHT) Hectares

FIRST TRANSFERED by Deed of Grant F.T. 737 - V.Q 7/25 with Diagram relating  
thereto and HELD by Deed of Transfer No 412/1960

SUBJECT TO:-

The conditions contained in the aforesaid Deed of Grant, No. V whereof  
reads as follows:-

- V. "That the rights of the Proprietor shall not extend to any  
deposits of gold, silver, platinum or precious stones, which  
may at any time be or be discovered on the land hereby  
granted and the right of mining for gold, silver, platinum or  
precious stones is reserved by the Government under such  
regulations as shall from time to time be established by  
law."

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WHEREFORE the said Appearer, renouncing all the right and title which the said  
IAN LAKE BLACKWOOD heretofore had to the premises, did in consequence also  
acknowledge him to be entirely dispossessed of, and disentitled to, the same; and  
that, by virtue of these presents, the said :

The Trustees for the time being of EDINBURGH TRUST No : IT 8507/99  
its successors in title or assigns now and henceforth shall be entitled thereto,  
conformably to local custom, the State, however, reserving its rights, and finally  
acknowledging the purchase price of the property hereby transferred to be the  
sum of R2 459 375,01 (TWO MILLION FOUR HUNDRED AND FIFTY NINE  
THOUSAND THREE HUNDRED AND SEVENTY FIVE RAND AND ONE CENTS).

SM



IN WITNESS WHEREOF I, the said Registrar of Deeds together with the Appearer, have subscribed to these presents and have caused the Seal of Office to be affixed thereto.

THUS DONE AND EXECUTED at the Office of the REGISTRAR OF DEEDS  
at VRYBURG  
on

2001-03-20


  
\_\_\_\_\_  
q.q. Signature of appearer

In my presence:

  
REGISTRAR OF DEEDS

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Transfer Duty Exempted  
Receipt issued at KIMBERLEY  
on 2001.03.07

Checked: 1.   
2.





## **Appendix 2: Expertise of the EAP and Project Team**



## Curriculum Vitae of Jessica Angel

### Personal Details

- **Name:** Jessica
- **Surname:** Angel
- **Identity Number:** 8312250052082
- **Date of Birth:** 25-12-1983
- **Citizenship:** South African
- **Gender:** Female
- **Marital Status:** Single
- **Languages Spoken:** English and Afrikaans

### Education History

- **2002:** Matriculated from Northcliff High School with the following subjects: English, Afrikaans, Mathematics, Science, Biology and Art.
- **2005:** Completed BA at University of the Witwatersrand with Geography and Archaeology Majors.
- **2006:** Completed BSc Hons (Geography) at the University of the Witwatersrand with the following subjects: Environmental Management, Advanced Geographic Information Systems (GIS), Paleogeomorphology and Globalisation and Agro Food Restructuring.
- **2009 – 2013:** M.Sc Archaeology and Geography, with thesis title: *Mpumalanga Late Iron Age: Incorporating Geographic Information Systems (GIS) and Archaeological Data to Better Understand Spatial and Temporal Distribution of Past Societies*. (Graduated March 2014).

### Employment History

#### Part time employment as a student:

- **2011:** Research Assistant: GIS work for Prof Karim Sadr. Duties include: Google Earth survey work and digitising.
- **2012-2013:** Basic internship at PGS. Duties include gaining familiarity with gathering relevant background data, field surveys, exhumations and report writing.
- **2013:** Heritage work at NGT. Background research, report writing and ground surveys.
- **2015 –** Archaeologist – PGS Heritage

#### Experience in the field of archaeology:

September 2012: First Phase Heritage Assessment. Belfast. Marko Hutten and Jennifer Kitto  
August 2012: First Phase Heritage Assessment. Delareyville. Wouter Fourie. Stone Age survey  
August 2012: Heritage Assessment. MP. Chris van Vuuren and Jennifer Kitto. Ndebele initiation site.  
February 2013: Map survey. PTA East. Polka Birkholtz. Mapping Iron Age site.  
February 2013: Grave Exhumation. Chlorkop. Marko Hutten  
March 2013: First Phase Heritage Assessment. MP. Jennifer Kitto.  
July 2013: Grave Exhumation. Mafikeng. Prof Maryna Steyn and Coen Nienaber.  
November 2013: First Phase Heritage Assessment. Port Nolloth. Luke Verbant, Ursula Verbant.  
January 2015 – June 2015: 10 Heritage Impact assessments and background research for PGS Heritage

## **Computer Literacy and Experience**

- GIS ArcGIS, QGIS, GRASS, Microsoft Office

### Personal Details

**Surname** : Broughton  
**Names** : Elena  
**Date of Birth** : 11 September 1980  
**Nationality** : Russian  
**Residency** : RSA Permanent Resident  
**Profession** : Senior Development Economist



### Key Qualifications

**Elena Broughton** completed her BCom (Hon) in Economics in Russia, at Nizhny Novgorod State University in 2002 specialising in regional economics. At the same time, she completed an additional degree as Translator/Interpreter in Professional Orientated Communication. After completion of her Honours degree in Economics, Elena has moved to the USA and stayed there for 1.5 years. During her stay in the USA, she completed a number of Accounting and Business courses at Parkland College, Illinois. In 2007, she obtained her BSc (Hon) in Technology Management (Cum Laude) at the University of Pretoria and later received her MSc in Technology Management (2011) from the same university.

Elena Broughton is a senior professional at Urban-Econ and has an extensive knowledge in various fields of economic development, including impact assessments, investment strategy formulation, strategic decision analysis, and monitoring and evaluation. She is experienced in developing input-output and SAM-based models, as well as development and application of other econometric techniques. Elena has a special interest in project evaluation and decision-making framework, with the later being the focus of her Master's dissertation. Over the past few years, she was able to extend her experience in these fields working on projects for both government and the private sector.

### Academic Qualifications

Institution (Date from – Date to)	Degree(s) or Diploma(s) obtained:
2008-2011	MSc in Technology Management
2006 - 2007	BSc (Hon) in Technology Management
2004, Parkland College, USA	Computer Integrated Accounting
2004, Parkland College, USA	Independent Business
2003, Parkland College, USA	Intermediate Accounting
2003, Parkland College, USA	Records Management
2003, Parklands College, USA	Financial Accounting
2003, Parklands College, USA	Managerial Accounting
2002, Nizhny Novgorod University, Russia	BCom (Hon) in Economics



## Language Proficiency

	Reading	Writing	Speaking
Russian	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

## Employment Record

2004: Urban-Econ: Development Economist

## Projects Undertaken

- **Go to Market Strategy for a PV Panel Manufacturer:** Urban-Econ Development Economists together with EScience Associates and Tracy Stewart Consulting was appointed by the CEF to undertake a Go-to-Market Strategy for a PV panel manufacturing facility. The project comprised of two major parts. The first components included the analysis of the market and opportunities presented in the market, as well as identification of the needs, affordability levels, and requirements by all groups of stakeholders comprising the industry's value chain. The second part of the study included the formulation of the strategic plan that outlined various target markets to be pursued, value proposition to be offered, market channels to be considered for entering the market, and activities to be implemented during the product pre-launch, launch and post-launch phases.
- **SunCorp Socio-Economic and Enterprise Development Plan formulation:** Urban-Econ Development Economists was appointed by SunCorp to develop a Socio-Economic Development and Enterprise Development Plans for a solar PV project in the Free State. The plans were devised in line with the DOE requirements outlined for the bidding phase.
- **Savanna Cookware Manufacturing Facility Pre-Feasibility Study: Urban-Econ Development Economists** undertook a pre-feasibility study for a manufacturing facility planned to produce luxurious stainless steel cookware in South Africa. The pre-feasibility study focused on determining the need and desirability for the proposed manufacturing facility considering the defined primary and secondary markets; the key prerequisites for the viability of the proposed venture and the most optimal location for the proposed manufacturing facility.
- **An opportunity cost assessment for the proposed Labonte 5 mining project:** The purpose of the study was to investigate the opportunity cost of the proposed sand mining project to determine the implications on the local economy dynamics and the impact on the major infrastructure projects implemented in the Lephalale area if the proposed project is not approved.
- **Saldanha Bay Separation Plant Economic Impact Assessment:** The project involved undertaking an economic impact assessment study for the proposed construction and operation of a Rare Earth Elements (REE) Separation Plant on Portion 6 of the Farm Langeberg 188 in Saldanha, in the Western Cape Province. The study formed part of the Environmental Impact Assessment process as prescribed in the National Environmental Management Act (NEMA) of 1998 and its subsequent amendments.
- **Zandkopsdrift Rare Earth Elements (REE) Project Economic Impact Assessment:** The project involved undertaking an socio-economic impact assessment study for the proposed the Zandkopsdrift Rare Earth Elements (REEs) Project near Garies in the Northern Cape Province of South Africa. The study formed part of the Environmental Impact Assessment process as



prescribed in the National Environmental Management Act (NEMA) of 1998 and its subsequent amendments.

- **Balmoral EIA:** The study involved undertaking a socio-economic impact assessment as an input into a Basic Impact Assessment Study for the proposed Balmoral X5 Township Development in the Ekurhuleni Metropolitan Municipality (EMM).
- **Green Building Market Entry Study:** The Embassy of the Kingdom of the Netherlands in Pretoria appointed Urban-Econ Development Economists to undertake a market entry study for the Green Building industry of South Africa. The document was compiled for the purpose of guiding the existing or prospective Dutch companies in expanding or involving themselves in the South African Green Building industry. The report contained information on the policy and regulatory environment that drives the development of this sector in the country and the broad overview of the status of the construction industry with the focus on the green building industry. The document also encompassed information on the state of development and industry maturity of selected green building sub-sectors that are aligned with the expertise of the Dutch companies. Information on doing business in South Africa as far as procurement and tendering practices, business funding and other support offered by South Africa and Netherlands was also provided.
- **Royal Bafokeng Mining Procurement Study:** The study business opportunities that can be established in the area leading to the localisation of mining inputs. It was based on a comprehensive assessment of the selected mine's contract-based procurement practices.
- **Ventersburg Business Development Concept:** The study focused on the identification of business development opportunities that could be pursued in the town of Ventersburg based on the traffic derived in the area from the N1 highway and other regional roads. The study involved a comprehensive assessment of the target markets induced by traffic, economic base of the area, current business offerings and derived opportunities. It concluded with a presentation of business development concept scenarios and associated socio-economic benefits.
- **Northern Cape Renewable Energy Strategy:** Urban-Econ Development Economists with a support from EScience Associates and Centre for Renewable and Sustainable Energy Studies (CRSES) was appointed to develop a renewable energy strategy for the Northern Cape. The objective of the study was to undertake a situational assessment of the Northern Cape economy to identify the opportunities and constraints with respect to renewable energy development, and accordingly to formulate a plan to unlock the existing potential of the province to harness renewable energy to the benefit of its communities and economy and to position the province to attract a maximum share of investment under the IRP2010 Renewable Energy Target and beyond.
- **The localisation potential of Photovoltaics and a strategy to support large scale roll-out in South Africa:** A consortium comprising of EScience Associates, Urban-Econ Development Economists and Chris Ahlfeldt (the project team was appointed to undertake the study on the localisation potential of solar PV. The specific objectives of the study included profiling of the industry, analysis of the PV industry value chain, and development of the strategy for the future roll-out of the industry in the country.
- **Feasibility study into establishing CSP component manufacturing facilities in South Africa:** The Industrial Development Corporation (the IDC) has commissioned Urban-Econ Development Economists supported by EScience Associates to undertake a feasibility study to determine the viability of the establishment of a manufacturing facility of CSP modules and components in South Africa.
- **Eskom CSP Macro-Economic Impact Assessment:** Eskom CSP (Solar 1) Macroeconomic Impact Assessment: The study involved the identification of potential localisation opportunities for various components of the project and modelling of the socio-economic impacts.



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- **Proposed Exxaro IPP Coal-Powered Power Station near Lephalale, Limpopo Scoping Inputs:** Urban-Econ Development Economists was appointed to undertake a Socio-Economic Scoping Study and Land Use Impact Study for the proposed Exxaro coal-powered power station near the town of Lephalale, in the Limpopo province.
  - **Mafube Nooitgedacht and Wildfontein EIA/EMP Sustainable Development Investigation Study:** Urban-Econ Development Economist was appointed to undertake an investigation into sustainable development options associated with the proposed project. The results of this study aimed at informing the decision makers of socio-economic trade-offs related to each option analysed and the most preferred alternative.
  - **Thaba Metsi Sustainable Development Investigation Study:** The objective of the Thabametsi Project is to mine coal via opencast and underground mining methods for supply to the Independent Power Producer (IPP) coal-fired power station, to be developed by Exxaro north of the proposed Thabametsi project. Urban-Econ Development Economists provided a specialist input into the sustainable development Investigation that aimed to quantify and assess various options associated with the development and post-mining land uses that formed part of an input into the EIA report.
  - **Eskom Sere Wind (WEF1) Macro-Economic Impact Assessment:** The project entailed the strategic assessment of the proposed facility on the macroeconomic situation with respect to the impact on the balance of payments, supply of energy, demand for water, and achievement of strategic government objectives. It also entailed the assessment of the proposed project on the regional and local economies.
  - **Socio-Economic and Economic Impact Assessment Studies for Renewable Energy Projects** conducted as part of the Environmental Impact Assessment Processes
    - Arriesfontein Solar Energy Park near Danielskuil in the Northern Cape (100 MW CSP-Tower facility and 225 MW PV solar facility)
    - Humansrus Solar Energy Facility near Postmasburg in the Northern Cape (100 MW CSP-Tower facility)
    - Rooipunt Solar Energy Park near Upington in the Northern Cape (100 MW CSP-Tower facility and 215 MW PV solar facility)
    - Farm 198 PV Solar Energy Facility north of Kimberley in the Northern Cape (210 MW PV solar facility)
    - Wag'nbiokiespan PV Solar Energy Facility near Boshof, the Free State Province (75 MW PV solar facility)
  - **Energy-Related Proposals Evaluation for the Department of Science and Technology:** Urban-Econ Development Economists was appointed to undertake an evaluation of six energy-related proposals submitted to the DST SBS. The objective of the evaluation is to advise the Department on whether the projects described in the proposals should be funded or not. The assessment takes into account operational and financial feasibility of projects, alignment thereof with government objectives, economic benefits derived from the project, ability of the organisations to implement the projects successfully and a risk assessment. The project also involves the development of a decision framework on the basis of a Multi-Criteria Decision Method that will be used to compare proposals and determine the one that are not only suitable for funding but those that should be prioritised above others.
  - **Independent evaluation of the Wireless Mesh Network in Government Broadband:** Urban-Econ Development Economists was appointed to undertake an independent evaluation of the Community Wireless Mesh Networks in the Government Broadband project. Urban-Econ's responsibility is to evaluate the progress of the project to this date and provide recommendations that can be implemented to improve its design and execution.
  - **Department of Science and Technology Economic Analysis Model:** Urban-Econ was appointed by the Department of Science and Technology (DST) to assist them in developing a
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decision-making framework that would allow them to evaluate various proposals from an economic perspective and identify the ones that would create the largest economic benefits.

- **Eskom Ariadne-Eros Power Lines Economic and Agricultural Impact Assessment:** Urban-Econ was appointed to undertake an Agricultural Potential and Economic Impact Assessments for the proposed Ariadne-Eros transmission power line, and expansion and upgrade of the related substations in KwaZulu-Natal.
- **Eskom Ingula Pumped Storage Scheme Regional Economic Impact Assessment:** The purpose of the study was to present an assessment of socio-economic impact of the Ingula Pumped Storage Scheme on the national and regional economies.
- **Gauteng Infrastructure Renewal and Investment Plan (GIRIP):** the study involved the formulation of an infrastructure and renewal plan up until 2025 that would transform Gauteng into a competitive Global City-Region. As part of the study a regional model with necessary demographic and economic projects was developed that assisted in identifying future infrastructural needs in the Province.
- **De Hoop Dam Economic Impacts Monitoring Framework:** Urban-Econ was approached to develop and set up an integrated and coherent monitoring and evaluation reporting system which will primarily be based on a regional impact assessment model framework to monitor and evaluate the regional socio-economic impacts due to the development of the De Hoop dam
- **North West Cluster Performance Analyses:** Urban-Econ was appointed by the North West Office of the Premier to undertake the analyses of statistics tables for six clusters (Human Resource Development, Physical Assets, Resource Base, Governance and Protection, Economic, and Social), identify areas that require interventions, and proposes possible solutions to address the key challenges.
- **Mopani Investment Strategy:** Urban-Econ Development Economists was appointed by the Mopani District Municipality to formulate an investment strategy for the region with a focus of promoting integrated and sustainable development in the local economy.
- **Socio-Economic Impact Assessment Of The Proposed Route Operator Business In Mpumalanga:** The project entailed assisting with the preparation of the response to the Request for Applications in respect of Limited Payout Machine Licences in the Mpumalanga Province. The assistance requested encompassed a macro-level socio-economic analysis of the proposed route operator business in Mpumalanga with a focus on: (a) benefits to the economy in terms of gross geographical product ("GGP"), employment creation, increased household income, skills development, and small, medium, micro enterprise ("SMME") development and (b) potential social impact of gaming in the Province.
- **N3 Highway Economic Impact Assessment:** Urban-Econ was appointed to determine the Socio-Economic Impact of the proposed re-routing of the N3 highway around Harrismith and the current link with the N5 Route towards Lesotho and Mangaung.
- **The Mandela Bay Precinct Economic Impact Assessment:** The study entailed conducting an economic impact assessment of the proposed Mandela Bay Precinct Development in Port Elizabeth. The proposed project was a mixed use development with the main component being a Regional Shopping Centre that will be surrounded by high density residential property, filling stations, light industrial space, a hospital, a hotel, and office space.

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- **The City of Windhoek Draft SME Policy:** Urban-Econ was appointed by the City of Windhoek (COW) Local Authority to develop a Draft SME Development Policy Directive to guide future SME promotion and development in the City of Windhoek
  - **Harrismith Logistics Hub Impact Assessment:** Urban-Econ Development Economists was appointed to undertake a rapid economic impact assessment study of the proposed Harrismith Freight Logistics Hub (“HLH”). The aim of the study was to determine potential benefits that could be created by the HLH in terms of unlocking the latent development of the area. This technical memorandum presents the results of the study.
  - **Megamall Economic Impact Assessment:** Urban-Econ was requested to undertake an economic impact study for the Megamall project to be developed in the Mogale City Local Municipality. The aim of the study was to determine the potential economic impacts emanating from the proposed development. This study involved assessment of socio-economic impacts the proposed project could have on the local economy which could be used in application for funding from commercial banks and government.
  - **Coega Ridge Economic and Social Impact Assessments:** Urban-Econ was appointed to undertake economic and social impact assessment of the proposed Coega Ridge development. The aim of the development was to create a unique and sustainable residential enclave encompassing a “live, work, play, and shop” environment and comprising such components as affordable housing, shopping centre, office park, industrial park, community and social facilities, bulk service infrastructure, and public open space.
  - **Amanzi Economic and Social Impact Assessments:** Urban-Econ was requested to undertake an economic and social impact studies for the proposed Amanzi Estate that included the original homestead of Sir Percy Fitzpatrick, author of Jock of the Bushveld
  - **Limpopo Industrial Parks Resuscitation Assessment:** Urban-Econ was appointed to assess the feasibility of resuscitation of the selected industrial parks in the Limpopo Province. Study included analysis of the economic potential of the selected areas, development of scenarios and formulation of recommendations. Managed the team of sub-consultants.
  - **North West PGDS Monitor 2007:** the study encompasses a comprehensive analysis and projections of the achievement of the PGDS targets, reviewing the performance of the Working Groups, and providing recommendations regarding actions needed to be taken to address the shortfalls.
  - **Sedibelo Economic Impact Assessment:** The study involved conducting a economic impact assessment of the proposed development utilising an Input/Output model.
  - **Mooifontein Coal Mine Comparative Analysis, Mpumalanga:** Urban-Econ Development Economists were appointed to undertake a sustainable development investigation exercise that includes a comparative economic analysis between the status quo, i.e. farming, and an alternative land use, i.e. mining. The study made use of the economic modelling techniques to estimate the contribution of the current activities towards the country’s economy and the expected contribution of the proposed scenario. The impacts were calculated for a period of 100 years and compared to identify the most beneficial scenario from an economic perspective.
  - **Hanglip Sustainability Model:** Urban-Econ was appointed to develop a model that would have assisted the decision makers in identifying the most preferred alternative/s for the Hanglip Development. The model was based on the multi-criteria decision-making process.
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- **Emalahleni Investment Incentive Package:** Urban-Econ was appointed by the Emalahleni Local Municipality to update the Investment Incentive Package for the Emalahleni Local Municipality.
  - **Eastern Cape Industrial Sector Study:** Urban-Econ EC was appointed by the Eastern Cape Socio-Economic Consultative Council (ECSECC) to undertake an industrial sector study for the Eastern Cape Province. The study is envisioned to provide inputs to the Provincial Industrial Strategy that is currently being prepared. The focus of the strategy is on provision of support to the sectors with the potential for job creation in the Province. In this context, this study aims at identifying the sectors that have the highest potential for uplifting the second economy in the Province and highlighting their growth barriers.
  - **Socio-Economic Impact Assessment of the Proposed New Eskom Power Stations in the Witbank Geographical Area and Northern Free State:** The study involved conducting a socio-economic impact assessment of the proposed developments utilising an Input/Output model.
  - **Sedibeng Investment Incentive Package:** The study encompasses a formulation of an incentive package that would enhance development and investment in the area, as well as promote economic growth. A comprehensive socio-economic analysis of the Sedibeng DM and its Local Municipalities, including growth potential was performed.
  - **North West Sustainable Development Indicators Pilot Project:** After completing the North West Sustainable Development Indicators, Urban-Econ was appointed to execute of the pilot project of population the framework.
  - **North West Sustainable Development Indicators:** Urban-Econ Development Economists have been appointed by the North West Province's Office of the Premier to formulate a Sustainable Development Indicator Framework for the North West Provincial Administration. The purpose of the framework is to assist the provincial government authority in the monitoring and evaluation of their progress towards achieving sustainable growth and development.
  - **Polokwane Trade Hub:** Urban-Econ Development Economists, assisted by Nyeleti Consulting Engineering, were appointed by Polokwane Municipality to undertake a Polokwane Trade Hub feasibility study. The feasibility study included investigation of the potential of Polokwane to develop into a regional trade, implications associated with its development, and the initiatives, including programmes and projects, that need to be implemented to realise the vision of Polokwane as a regional trade hub.
  - **Mpumalanga Job Creation Budget:** The project involved an assessment of the provincial budget with respect to its impact on job creation and identification of opportunities to enhance sustainable job creation in the Province.
  - **Joburg BPO Zone:** Urban-Econ was appointed to provide an urban-economic rationale and motivation for the selection of a BPO Precinct in the Joburg Inner City.
  - **The North West Barometer 2006: Economic Module Update.** Urban-Econ Development Economists have been appointed by the North West Province's Office of the Premier to formulate a Sustainable Development Indicator Framework for the North West Provincial Administration. This report details the project roll-out plan and project progress to date.
  - **Bekkersdal Skills and Entrepreneurship Development Strategy.** The Bekkersdal Skills and Entrepreneurship Development Strategy provides the reader with thorough data on the existing pool of enterprises and entrepreneurs, services and products; and existing skills in
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Bekkersdal, which can be utilized by public and private entities. The document includes Skills Audit and Business Audit Databases in Access format.

- **Baralink economic and market study.** Urban-Econ: Development Economists have been appointed by Urban Dynamics to undertake an economic and market study of four areas, namely, Baralink, JP's Town, Orange Farm, and Kwadzudza; and provide the feedback on potential economic activates that can be introduced to the area in regard to promotion of sustainable livelihoods. This study forms a part of a more comprehensive analysis of the abovementioned areas, the purpose of which is to compile a strategy for sustainable housing development, according to the new housing policy, in different regions of Johannesburg Metropolitan area.
  - **Business Improvement District Strategy for Bekkersdal.** Due to the low levels of consumer and business confidence in the Bekkersdal CBD, this project required the formulation of a strategy for the establishment and implementation of a BID for the CBD area of Bekkersdal.
  - **Expansion of Holcim Cement Plant: Economic Impact Assessment.** Urban-Econ has been appointed to assess economic impact of the expansion of Holcim Cement plant in Roodepoort.
  - **Madiba Bay Leisure Park Regional Mall Market Study.** Urban-Econ: Development Economists were commissioned by East Cape Showcase (Ltd.) to conduct empirical market research and compile a specialist market study for the proposed regional retail mall within the North Gate precinct of the Madiba Bay Leisure Park project.
  - **Social and Labour Plan for Brandbach Mine, Cullinan.** Mining industry is a cornerstone of the South African economy. So far it has experienced rises and downfalls. In order to insure sustainable development of the industry in the future along with the implementation of national visions on skills development, poverty alleviation, BEE and employment creation, the government has introduced a Skills and Labour Plan, preparation of which became a prerequisite for every mine in the country. Urban-Econ's suster company, Econo-Mine, has been appointed to develop such plan for the Brandbach Mine in Cullinan.
  - **NIPS for POPS Economic Impact:** Urban-Econ has been appointed as part of a specialist team to undertake the economic impact assessment of Infrastructure related to Persistent Organic Pollutants (POPS) in South Africa. The focus of the assessment is to formulate clear strategic guidelines related to the impacts of POPS and or their removal/eradication for the Development of National Implementation Plans (NIPS) of the Stockholm Convention on POPS.
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**Wouter Fourie**  
**Professional Heritage Specialist and Director PGS Heritage**

**Summary of Experience**

Specialised expertise in Cultural Resource Management and Heritage Impact Assessment Management, Archaeology, Anthropology, Applicable survey methods, Fieldwork and project management, Geographic Information Systems, including *inter alia*:

Involvement with various Heritage Impact Assessments, within South Africa, including:

- Archaeological Walkdowns for various projects
- Phase 2 Heritage Impact Assessments and EMPs for various projects
- Heritage Impact Assessments for various projects

Iron Age Mitigation Work for various projects, including archaeological excavations and monitoring

Involvement with various Heritage Impact Assessments, outside South Africa, including:

- Heritage Impact Assessments in Democratic Republic of Congo
- Heritage Impact Assessments in Mozambique, Botswana and DRC
- Grave Relocation projects in DRC

Involvement in various grave relocation projects (some of which relocated up to 1000 graves) and grave “rescue” excavations in the various provinces of South Africa

**Key Qualifications**

BA [Hons] (Cum laude): Archaeology and Geography

BA: Archaeology, Geography and Anthropology

Professional Archaeologist - Association of Southern African Professional Archaeologists (ASAPA) - Professional Member

Accredited Professional Heritage Specialist – Association of Professional Heritage Practitioners (APHP)

CRM Accreditation (ASAPA):

- Principal Investigator - Grave Relocations
- Field Director – Iron Age
- Field Supervisor – Colonial Period and Stone Age

Accredited with Amafa KZN and Eastern Cape PHRA

**Key Work Experience**

2008- current: Director –Professional Grave Solutions (Pty) Ltd t/a PGS Heritage

2007 – 2008: Project Manager – Matakoma-ARM, Heritage Contracts Unit, University of the Witwatersrand

2005-2007: Director - Professional Grave Solutions (Pty) Ltd

2000-2004: CEO– Matakoma Consultants

1998-2000: Environmental Coordinator – Randfontein Estates Limited. Randfontein, Gauteng

1997-1998: Environmental Officer – Department of Minerals and Energy. Johannesburg, Gauteng

## CURRICULUM VITAE

Andrea Gibb

**Name** Andrea Gibb

**Profession** Environmental Practitioner

**Name of Firm** SiVEST SA (Pty) Ltd

**Present Appointment** Environmental Practitioner and Visual Specialist:  
Environmental Division

**Years with Firm** 4.5 Years

**Date of Birth** 29 January 1985

**ID Number** 8501290020089

**Nationality** South African



### Education

Matriculated 2003, Full Academic Colours, Northcliff High School, Johannesburg, South Africa

### Professional Qualifications

#### **BSc (Hons) Environmental Management** (University of South Africa 2008-2010)

Coursework: Project Management, Environmental Risk Assessment and Management, Ecological and Social Impact Assessment, Fundamentals of Environmental Science, Impact Mitigation and Management, Integrated Environmental Management Systems & Auditing, Integrated Environmental Management, Research Methodology.

Research Proposal: Golf Courses and the Environment

#### **BSc Landscape Architecture** (with distinction) (University of Pretoria 2004-2007)

Coursework: Core modules focused on; design, construction, environmental science, applied sustainability, shifts in world paradigms and ideologies, soil and plant science, environmental history, business law and project management.

Awards: Cave Klapwijk prize for highest average in all modules in the Landscape Architecture programme, ILASA book prize for the best Landscape Architecture student in third year design, Johan Barnard planting design prize for the highest distinction average in any module of plant science.

#### **ArcGIS Desktop 1** (ESRI South Africa December 2010)

### Employment Record

Aug 2010 – to date SiVEST Environmental Division: Environmental Practitioner  
Jan 2008 – July 2010 Cave Klapwijk and Associates: Environmental Assistant and Landscape Architectural Technologist  
Feb 2006 – Dec 2006 Cave Klapwijk and Associates: Part time student

### Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Fluent	Fluent	Fluent



## Key Experience

Specialising in the field of Environmental Management and Visual Assessment.

Andrea joined SiVEST in August 2010 and holds the position of Environmental Practitioner in the Johannesburg Office. She has 7 years' work experience and specialises in undertaking and managing Environmental Impact Assessments (EIAs) and Basic Assessment (BAs), primarily related to energy generation and electrical distribution projects. She also specialises in undertaking visual impact and landscape assessments, by making use of ArcGIS technology and field surveys. She has extensive experience in overseeing public participation and stakeholder engagement processes and has been involved in environmental baseline assessments, fatal flaw / feasibility assessments and environmental negative mapping / sensitivity analyses. From a business and administrative side, Andrea is actively involved in maintaining good client relationships, mentoring junior staff and maintaining financial performance of the projects she leads.

### Skills include:

- Project Management (MS Project)
- Environmental Impact Assessment (EIA)
- Basic Assessment (BA)
- Public Participation
- Visual Impact Assessment (VIA)
- Landscape Assessment
- Strategic Environmental Planning
- Documentation / Quality Control
- Project Level Financial Management

## Projects Experience

### Aug 2010 – to date

#### ENVIRONMENTAL IMPACT ASSESSMENT (EIA) / BASIC ASSESSMENT (BA)

- EIA for the proposed construction of a 75MW Solar Photovoltaic (PV) Power Plant near Dennilton, Limpopo Province.
- EIA for the proposed development of the Dwarsrug Wind Farm near Loeriesfontein, Northern Cape Province.
- BA for the proposed construction of two 132kV power lines and associated infrastructure from the Redstone Solar Thermal Power Project site to the Olien MTS near Lime Acres, Northern Cape Province.
- BA for the proposed construction of two 132kV power lines and associated infrastructure from Silverstreams DS to the Olien MTS near Lime Acres, Northern Cape Province.
- BA for the proposed Construction of the SSS1 5MW Solar Photovoltaic (PV) Plant on the Western Part of Portion 6 (Portion of Portion 5) of Farm Spes Bona 2355 near Bloemfontein, Free State Province.
- BA for the proposed Construction of the SSS2 5MW Solar Photovoltaic (PV) Plant on the Eastern Part of Portion 6 (Portion of Portion 5) of Farm Spes Bona 2355 near Bloemfontein, Free State Province.
- BA for the proposed Mookodi Integration Phase 2: Proposed Construction of a 132kV power line from the proposed Bophirima Substation to the existing Schweizer-Reneke Substation, North West Province.
- BA for the proposed Mookodi Integration Phase 2: Proposed Construction of a 132kV power line from the Mookodi Substation to the existing Magopela Substation, North West Province.
- BA for the proposed Mookodi Integration Phase 2: Proposed Construction of the Mookodi - Ganyesa 132kV power line, proposed Ganyesa Substation and Havelock LILO, North West Province.

- Amendment of the Final Environmental Impact Report for the Proposed Mookodi 1 Integration Project near Vryburg, North West Province.
- BA for the proposed 132kV power line and associated infrastructure for the proposed Redstone Solar Thermal Energy Plant near Lime Acres, Northern Cape Province.
- BA for the proposed construction of a 132kV power line and substation associated with the 75MW Photovoltaic (PV) Plant on the Farm Droogfontein (PV 3) in Kimberley, Northern Cape Province.
- BA for the proposed establishment of a Learning and Development Retreat and an Executive Staff and Client Lodge at Mogale's Gate, Gauteng Province.
- Amendment application in order to increase the output of the proposed 40MW PV Facility on the farm Mierdam to 75MW, Northern Cape Province.
- BA for the proposed construction of a power line and substation near Postmasburg, Northern Cape Province.
- BA for the proposed West Rand Strengthening Project – 400kV double circuit power line and substation extension in the West Rand, Gauteng.
- EIA for the proposed construction of a wind farm and PV plant near Prieska, Northern Cape Province.
- Public Participation assistance as part of the EIA for the proposed Thyspunt Transmission Lines Integration Project – EIA for the proposed construction of 5 x 400kV transmission power lines between Thyspunt to Port Elizabeth, Eastern Cape Province.
- EIA assistance for the proposed construction of three Solar Power Plants in the Northern Cape Province.
- Public Participation as part of the EIA for the proposed Delareyville Kopela Power Line and Substation, North West Province.
- Public Participation as part of the EIA for the Middelburg Water Reclamation Project, Mpumalanga Province.

#### **VISUAL IMPACT ASSESSMENT (VIA)**

- VIA (Impact Phase) for the proposed development of the Dwarsrug Wind Farm near Loeriesfontein, Northern Cape Province.
- VIA for the proposed amendment to the authorised power line route from Hera Substation to Westgate Substation, Gauteng Province.
- VIA (Impact Phase) for the Eastside Junction Mixed Use Development near Delmas, Mpumalanga Province.
- VIA for the proposed construction of two 132kV power lines and associated infrastructure from the Redstone Solar Thermal Power Project site to the Olien MTS near Lime Acres, Northern Cape Province.
- VIA for the proposed construction of two 132kV power lines and associated infrastructure from Silverstreams DS to the Olien MTS near Lime Acres, Northern Cape Province.
- VIA (Scoping Phase) for the proposed development of the Dwarsrug Wind Farm near Loeriesfontein, Northern Cape Province.
- VIA for the proposed Rorqual Estate Development near Park Rynie on the South Coast of KwaZulu Natal.
- VIA (Scoping Phase) for the proposed construction of a Coal-fired Power Station, Coal Mine and Associated Infrastructure near Colenso, KwaZulu-Natal Province.
- VIA for the proposed Mookodi Integration Phase 2: Proposed Construction of the Mookodi - Ganyesa 132kV power line, proposed Ganyesa Substation and Havelock LILO, North West Province.
- VIA for the proposed construction of the Duma transmission substation and associated Eskom power lines, KwaZulu-Natal Province.
- VIA for the proposed construction of the Madlanzini transmission substation and associated Eskom power lines, Mpumalanga Province.
- VIA for the proposed rebuild of the 88kV power line from Normandie substation to Hlungwane substation, Mpumalanga and KwaZulu-Natal Provinces.

- VIA for the proposed construction of the Nzalo transmission substation and associated Eskom power lines, KwaZulu-Natal Province.
- VIA for the proposed construction of the Sheepmoor traction substation with two 20MVA transformer bays and a new associated 88kV turn-in power line, Mpumalanga Province.
- VIA for the proposed rebuild of the 88kV power line from Uitkoms substation to Antra T-off, Mpumalanga Province.
- VIA for the proposed rebuild of the 88kV power line from Umfolozi substation to Eqwasha traction substation including an 88kV turn-in power line to Dabula traction substation, Kwazulu-Natal Province.
- VIA for the proposed construction of the new 88/25kV Vryheid traction substation with two 20MVA transform bays and a new associated 88kV turn-in power line, KwaZulu-Natal Province.
- VIA for the proposed construction of a 132kV power line and substation associated with the 75MW Photovoltaic (PV) Plant on the Farm Droogfontein (PV 3) in Kimberley, Northern Cape Province.
- VIA (Impact Phase) for the proposed Construction of a Solar Photovoltaic (PV) Power Plant near De Aar, Northern Cape Province.
- VIA for the (Impact Phase) proposed Construction of the Renosterberg Wind Farm near De Aar, Northern Cape Province.
- VIA for the proposed construction of a 132kV power line for the Redstone Thermal Energy Plant near Lime Acres, Northern Cape Province.
- VIA for the proposed Mookodi Integration phase 2 132kV power lines and Ganyesa substation near Vryburg, North West Province.
- VIA for the proposed 132kV power lines associated with the Photovoltaic (PV) Plants on Droogfontein Farm near Kimberley, Northern Cape Province.
- VIA (Scoping phase) for the Eastside Junction Mixed Use Development near Delmas, Mpumalanga Province.
- VIA for the proposed development of a learning and development retreat and an executive and staff lodge at Mogale's Gate, Gauteng Province.
- VIA for the proposed construction of a substation and 88kV power line between Heilbron (via Frankfort) and Villiers, Free State Province.
- Visual Status Quo Assessment for the Moloto Development Corridor Feasibility Study in the Gauteng Province, Limpopo Province and Mpumalanga Province.
- VIA the West Rand Strengthening Project – 400kV double circuit power line and substation extension in the West Rand, Gauteng.
- VIA for the proposed construction of a wind farm and solar photovoltaic plant near Loeriesfontein, Northern Cape Province.
- Visual sensitivity mapping exercise for the proposed Mogale's Gate Expansion, Gauteng.
- VIA (Scoping Phase) for the proposed Renosterberg Solar PV Power Plant and Wind Farm near De Aar, Northern Cape Province.
- Scoping level VIAs for the proposed construction of three Solar Power Plants in the Northern Cape Province.
- VIAs for the Spoornet Coallink Powerline Projects in KZN and Mpumalanga.
- Visual Constraints Analysis for the proposed establishment of four Wind Farms in the Eastern and Northern Cape Province.
- VIA (Scoping Phase) for the proposed development of a solar energy facility in De Aar, Northern Cape.
- VIA (Scoping Phase) for the proposed development of a solar energy facility in Kimberley, Northern Cape.

### **STRATEGIC ENVIRONMENTAL PLANNING**

- Assistance with the Draft Environmental Management Framework for the Mogale City Local Municipality, Gauteng Province.
- Sensitivity Negative Mapping Analysis for the proposed Mogale's Gate Development, Gauteng Province.

**OTHER****Jan 2008 – July 2010**

Environmental management, research, report writing, and landscape design for several development projects:

- Report writing, coordination and public participation for several BAs.
- Planting design (including rehabilitation) in accordance with natural ecological processes, endemic species and appropriate techniques.
- Graphic presentations and mapping for several VIAs and landscape architectural designs, including three-dimensional imagery.

**Feb 2006 – Dec 2006**

Landscape Architectural drafting, rendering and planting design for a variety of projects including the Oprah Winfrey Academy for girls and the New UNISA Student Entrance Building.

**CURRICULUM VITAE  
DR GIDEON GROENEWALD**

**Cell phone:** 078 713 6377 **Email:** 1davidgroenewald@gmail.com

**Name:** Dr Gideon Groenewald  
**Age:** 59  
**Profession:** Geologist  
**Date of Birth:** 1955-09-30  
**Parent Firm:** Self Employed  
**Nationality:** South African  
**Native Language:** Afrikaans. Able to speak, read and write English fluently.

**Academic Qualifications:**

BSc and BSc Hons (UPE, 1978), MSc (RAU, 1985), Nat  
Dip Nature Conservation (Tech SA, 1990), PhD Geology (UPE, 1996)  
Professional Associations: Professional Scientist (Reg. No. 401946/83).  
Professional membership with the Geological Society of South Africa, the  
Palaeontological Society of South Africa, Borehole Water Association of South  
Africa.

**Publications:**

- 16 Scientific and large number of popular articles on geology, ecology and groundwater.
- 12 TV 50/50 programs on nature conservation and geology, mainly with Jan Horn and Johan Botha as producers.
- Several children programs on SATV
- M-Net programs, several producers.
- BBC TV Series: "Earth Story" (1998), producer Cynthia Page.
- 10 Papers read at International Symposiums.
- Regular speaker at public meetings and schools.
- Course in Eco-tourism, Qwaqwa University

**General Geological, Palaeontological and Environmental Management Experience:**

37+ years experience in Southern Africa in the capacity as:

**1978-1986** Geologist - Geological Survey SA - regional mapping division

**1986-1993** Ranger, Snr Research Officer, Geologist - National Parks Board SA, geological and groundwater studies in Southern and Inland Parks

**1993-present** Director of Metsi Metseng Geological Services – consultant to farmers and larger companies, Maseru Pumps and Plastics (Lesotho), Peace Parks Foundation, SA National Parks, Local Town Councils, DLA, Dept of Agriculture, DEAT, Imperial Truck and Car, Caltex, Shell and Anglo American on ground water related projects, locating and mapping of quarries in dolerite and sandstone terrain for road building, locating and mapping of sand deposits for construction work, electronic database programs, classification and mapping of geological formations in terms of structural stability for engineering projects, classification and mapping of soils for engineering projects.

Environmental Impact Assessments. Risk assessment at sites of petroleum spills. Very good knowledge of geology of the Upper Karoo Supergroup (PhD) and dolerite formations (groundwater related projects), monitoring of drilling and logging of boreholes (mainly chips,

but also coredrilling), full time since 1993.

**1993 – present:** Appointed geohydrologist for the siting of boreholes, monitoring of drilling and testing of boreholes for towns, farmers and industries. Also appointed geohydrologist for a number of geohydrological surveys and reports for developments around South Africa.

**2001-2010:** Contractual appointment: Peace Parks Foundation: Lesotho Transfrontier Facilitator for the Maloti-Drakensberg Transfrontier Conservation Development and other related Transfrontier projects. Mainly involved in development of Responsible Tourism in Lesotho and border regions of South Africa.

**2005-2006:** Consultant to Maluti-A-Phofung Municipality to develop Tourism Sector Plan (DBSA Project)

**2005-present:** Ad hoc appointment as environmental consultant (geology, geohydrology and soils) to assess environmental impacts at road accidents where tanker trucks are involved in large scale spillages of dangerous goods

**2008 – 2011:** Appointed Palaeontologist on the Ingula Pumped Storage Scheme of Eskom

**2009 – 2012:** Appointed Palaeontologist for the new Petroleum Pipeline installation from Heidelberg (Gauteng) to Durban

**2010 – 2012:** Appointed Geohydrologist to supply groundwater to the town of Senekal/Matwabeng

**2012:** Appointed palaeontologist by AMAFA to compile a palaeontological sensitivity map and palaeontological technical report for Kwa-Zulu Natal Province

**2012 – present:** Appointed palaeontologist for numerous palaeontological impact assessments (PIAs) throughout South Africa.

**2014:** Appointed palaeontologist by SAHRA to compile a palaeontological sensitivity map and palaeontological technical report for Free State, Gauteng, Limpopo, Mpumalanga and North West Provinces for integration into the SAHRIS online map

#### **Other Experience:**

**1986-1993:** Wildlife Management - ranger and research officer, National Parks Board, South Africa.

**1986-present:** Environmental Education - take school children on field trips, assist in filming of educational TV programs on interpretative geology, palaeontology and ecology, including grassveld ecology and the ecology of lichens.

**1978-present:** Palaeontology - Environmental Impact Assessments and Fossil hunting expeditions for international and local tourist market.

**1997 -** Co-leader of International Geological Conference Field Trip in the Karoo,

**2000 – 2003:** University of the Free State, Qwaqwa branch - Appointed as Senior Lecturer Eco-tourism. Development of short course in Ecotourism at Hons level.

**2005-2010:** Contractual employment to present short training courses in tourism – South Africa and Lesotho.

## CURRICULUM VITAE

### Dr. David Barry Hoare

B.Sc. (Hons), M.Sc., Ph.D., Pr.Nat.Sci. (Ecology, Botany), SAIE&ES (Professional member: Botany, Ecology), IAVS

#### Contact details

Postnet Suite #116  
Private Bag X025, Lynnwood Ridge, 0040  
Tel.: (012) 804 2281  
Fax: 086 550 2053  
Cell: 083 284 5111  
E-mail: [dhoare@lantic.net](mailto:dhoare@lantic.net) / [dbhoare@iburst.co.za](mailto:dbhoare@iburst.co.za)

#### Personal information

**Date of birth:** 04 November 1966, Grahamstown, South Africa  
**Citizenship:** Republic of South Africa  
**ID no.:** 661104 5024 088

#### Education

Matric - Graeme College, Grahamstown, 1984  
B.Sc (majors: Botany, Zoology) - Rhodes University, 1991-1993  
B.Sc (Hons) (Botany) - Rhodes University, 1994 with distinction  
M.Sc (Botany) - University of Pretoria, 1995-1997 with distinction  
PhD (Botany) - Nelson Mandela Metropolitan University, Port Elizabeth

#### Main areas of specialisation

- Vegetation ecology, primarily in grasslands, thicket, coastal systems, wetlands
- Plant biodiversity and threatened species specialist
- Remote sensing, analysis and mapping of vegetation
- Specialist consultant for environmental management projects

#### Membership

Professional Natural Scientist, South African Council for Natural Scientific Professions, 16 August 2005 – present. Reg. no. 400221/05 (Ecology, Botany)  
Professional member: South African Institute of Ecologists and Environmental Scientists, 10 July 2001 – present. Categories: Botany, Ecology  
Member, International Association of Vegetation Scientists

#### Employment history

1 February 1998 – 30 November 2004, Researcher, Agricultural Research Council, Range and Forage Institute, Private Bag X05, Lynn East, 0039. Duties: project management, general vegetation ecology, remote sensing image processing.  
1 December 2004 – present, Member, David Hoare Consulting cc no. 2001/034446/23. Consultant, specialist consultant contracted to a number of existing companies and organisations.  
1 January 2009 – 30 June 2009, Lecturer, University of Pretoria, Botany Dept.

#### Experience as consultant

Ecological consultant since 1995. Author of over 320 specialist ecological consulting reports. Wide experience in ecological studies within grassland, savanna and fynbos, as well as riparian, coastal and wetland vegetation.

#### Publication record:

##### Refereed scientific articles (in chronological order):

##### Journal articles:

**HOARE, D.B.** & BREDEKAMP, G.J. 1999. Grassland communities of the Amatola / Winterberg mountain region of the Eastern Cape, South Africa. *South African Journal of Botany* 64: 44-61.

- HOARE, D.B.**, VICTOR, J.E., LUBKE, R.A. & MUCINA, L., 2000. Vegetation of the coastal fynbos and rocky headlands south of George, South Africa. *Bothalia* 30: 87-96.
- VICTOR, J.E., **HOARE, D.B.** & LUBKE, R.A., 2000. Checklist of plant species of the coastal fynbos and rocky headlands south of George, South Africa. *Bothalia* 30: 97-101.
- MUCINA, L, BREDEKAMP, G.J., **HOARE, D.B** & MCDONALD, D.J. 2000. A National Vegetation Database for South Africa *South African Journal of Science* 96: 1-2.
- HOARE, D.B.** & BREDEKAMP, G.J. 2001. Syntaxonomy and environmental gradients of the grasslands of the Stormberg / Drakensberg mountain region of the Eastern Cape, South Africa.. *South African Journal of Botany* 67: 595 – 608.
- LUBKE, R.A., **HOARE, D.B.**, VICTOR, J.E. & KETELAAR, R. 2003. The vegetation of the habitat of the Brenton blue butterfly, *Orachrysops niobe* (Trimen), in the Western Cape, South Africa. *South African Journal of Science* 99: 201–206.
- HOARE, D.B** & FROST, P. 2004. Phenological classification of natural vegetation in southern Africa using AVHRR vegetation index data. *Applied Vegetation Science* 7: 19-28.
- FOX, S.C., HOFFMANN, M.T. and HOARE, D. 2005. The phenological pattern of vegetation in Namaqualand, South Africa and its climatic correlates using NOAA-AVHRR NDVI data. *South African Geographic Journal*, 87: 85–94.

#### **Book chapters and conference proceedings:**

- HOARE, D.B.** 2002. Biodiversity and performance of grassland ecosystems in communal and commercial farming systems in South Africa. Proceedings of the FAO's Biodiversity and Ecosystem Approach in Agriculture, Forestry and Fisheries Event: 12–13 October, 2002. Food and Agriculture Organisation of the United Nations, Viale delle Terme di Caracalla, Rome, Italy. pp. 10 - 27.
- STEENKAMP, Y., VAN WYK, A.E., VICTOR, J.E., **HOARE, D.B.**, DOLD, A.P., SMITH, G.F. & COWLING, R.M. 2005. Maputaland-Pondoland-Albany Hotspot. In: Mittermeier, R.A., Gil, P.R., Hoffmann, M., Pilgrim, J., Brooks, T., Mittermeier, C.G., Lamoreux, J. & Fonseca, G.A.B. da (eds.) *Hotspots revisited*. CEMEX, pp.218–229. ISBN 968-6397-77-9
- STEENKAMP, Y., VAN WYK, A.E., VICTOR, J.E., **HOARE, D.B.**, DOLD, A.P., SMITH, G.F. & COWLING, R.M. 2005. Maputaland-Pondoland-Albany Hotspot. <http://www.biodiversityhotspots.org/xp/hotspots/maputaland/>.
- HOARE, D.B.**, MUCINA, L., RUTHERFORD, M.C., VLOK, J., EUSTON-BROWN, D., PALMER, A.R., POWRIE, L.W., LECHMERE-OERTEL, R.G., PROCHES, S.M., DOLD, T. and WARD, R.A. *Albany Thickets*. in Mucina, L. and Rutherford, M.C. (eds.) 2006. The vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19, South African National Biodiversity Institute, Pretoria.
- MUCINA, L., **HOARE, D.B.**, LÖTTER, M.C., DU PREEZ, P.J., RUTHERFORD, M.C., SCOTT-SHAW, C.R., BREDEKAMP, G.J., POWRIE, L.W., SCOTT, L., CAMP, K.G.T., CILLIERS, S.S., BEZUIDENHOUT, H., MOSTERT, T.H., SIEBERT, S.J., WINTER, P.J.D., BURROWS, J.E., DOBSON, L., WARD, R.A., STALMANS, M., OLIVER, E.G.H., SIEBERT, F., SCHMIDT, E., KOBISI, K., KOSE, L. 2006. *Grassland Biome*. In: Mucina, L. & Rutherford, M.C. (eds.) The vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.
- RUTHERFORD, M.C., MUCINA, L., LÖTTER, M.C., BREDEKAMP, G.J., SMIT, J.H.L., SCOTT-SHAW, C.R., **HOARE, D.B.**, GOODMAN, P.S., BEZUIDENHOUT, H., SCOTT, L. & ELLIS, F., POWRIE, L.W., SIEBERT, F., MOSTERT, T.H., HENNING, B.J., VENTER, C.E., CAMP, K.G.T., SIEBERT, S.J., MATTHEWS, W.S., BURROWS, J.E., DOBSON, L., VAN ROOYEN, N., SCHMIDT, E., WINTER, P.J.D., DU PREEZ, P.J., WARD, R.A., WILLIAMSON, S. and HURTER, P.J.H. 2006. *Savanna Biome*. In: Mucina, L. & Rutherford, M.C. (eds.) The vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.
- MUCINA, L., RUTHERFORD, M.C., PALMER, A.R., MILTON, S.J., SCOTT, L., VAN DER MERWE, B., **HOARE, D.B.**, BEZUIDENHOUT, H., VLOK, J.H.J., EUSTON-BROWN, D.I.W., POWRIE, L.W. & DOLD, A.P. 2006. *Nama-Karoo Biome*. In: Mucina, L. & Rutherford, M.C. (eds.) The vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.
- MUCINA, L., SCOTT-SHAW, C.R., RUTHERFORD, M.C., CAMP, K.G.T., MATTHEWS, W.S., POWRIE, L.W. and **HOARE, D.B.** 2006. *Indian Ocean Coastal Belt*. In: Mucina, L. & Rutherford, M.C. (eds.) The vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.



### **Conference Presentations:**

- HOARE, D.B. & LUBKE, R.A. *Management effects on diversity at Goukamma Nature Reserve, Southern Cape*; Paper presentation, Fynbos Forum, Bienne Donne, July 1994
- HOARE, D.B., VICTOR, J.E. & LUBKE, R.A. *Description of the coastal fynbos south of George, southern Cape*; Paper presentation, Fynbos Forum, Bienne Donne, July 1994
- HOARE, D.B. & LUBKE, R.A. *Management effects on fynbos diversity at Goukamma Nature Reserve, Southern Cape*; Paper presentation, South African Association of Botanists Annual Congress, Bloemfontein, January 1995
- HOARE, D.B. & BOTHA, C.E.J. *Anatomy and ecophysiology of the dunegrass Ehrharta villosa var. maxima*; Poster presentation, South African Association of Botanists Annual Congress, Bloemfontein, January 1995
- HOARE, D.B., PALMER, A.R. & BREDENKAMP, G.J. 1996. *Modelling grassland community distributions in the Eastern Cape using annual rainfall and elevation*; Poster presentation, South African Association of Botanists Annual Congress, Stellenbosch, January 1996
- HOARE, D.B. *Modelling vegetation on a past climate as a test for palaeontological hypotheses on vegetation distributions*; Paper presentation, Randse Afrikaanse Universiteit postgraduate symposium, 1997
- HOARE, D.B., VICTOR, J.E. & BREDENKAMP, G.J. *Historical and ecological links between grassy fynbos and afro-montane fynbos in the Eastern Cape*; Paper presentation, South African Association of Botanists Annual Congress, Cape Town, January 1998
- LUBKE, R.A., HOARE, D.B., VICTOR, J.E. & KETELAAR, R. *The habitat of the Brenton Blue Butterfly*. Paper presentation, South African Association of Botanists Annual Congress, Cape Town, January 1998
- HOARE, D.B. & PANAGOS, M.D. *Satellite stratification of vegetation – structure or floristic composition?* Poster presentation at the 34<sup>th</sup> Annual Congress of the Grassland Society of South Africa, Warmbaths, 1-4 February 1999.
- HOARE, D.B. & WESSELS, K. *Conservation status and threats to grasslands of the northern regions of South Africa*, Poster presentation at the South African Association of Botanists Annual Congress, Potchefstroom, January 2000.
- HOARE, D.B. *Phenological dynamics of Eastern Cape vegetation*. Oral paper presentation at the South African Association of Botanists Annual Congress, Grahamstown, January 2002.
- HOARE, D.B., MUCINA, L., VAN DER MERWE, J.P.H. & PALMER, A.R. *Classification and digital mapping of grasslands of the Eastern Cape* Poster presentation at the South African Association of Botanists Annual Congress, Grahamstown, January 2002.
- HOARE, D.B. *Deriving phenological variables for Eastern Cape vegetation using satellite data* Poster presentation at the South African Association of Botanists Annual Congress, Grahamstown, January 2002.
- MUCINA, L., RUTHERFORD, M.C., HOARE, D.B. & POWRIE, L.W. 2003. *VegMap: The new vegetation map of South Africa, Lesotho and Swaziland*. In: Pedrotti, F. (ed.) *Abstracts: Water Resources and Vegetation, 46<sup>th</sup> Symposium of the International Association for Vegetation Science*, June 8 to 14 – Napoli, Italy.
- HOARE, D.B. 2003. *Species diversity patterns in moist temperate grasslands of South Africa*. Proceedings of the VII<sup>th</sup> International Rangeland Congress, 26 July – 1 August 2003, Durban South Africa. *African Journal of Range and Forage Science*. 20: 84.

### **Unpublished technical reports:**

- PALMER, A.R., HOARE, D.B. & HINTSA, M.D., 1999. *Using satellite imagery to map veld condition in Mpumalanga: A preliminary report*. Report to the National Department of Agriculture (Directorate Resource Conservation). ARC Range and Forage Institute, Grahamstown.
- HOARE, D.B. 1999. *The classification and mapping of the savanna biome of South Africa: methodology for mapping the vegetation communities of the South African savanna at a scale of 1:250 000*. Report to the National Department of Agriculture (Directorate Resource Conservation). ARC Range and Forage Institute, Pretoria.
- HOARE, D.B. 1999. *The classification and mapping of the savanna biome of South Africa: size and coverage of field data that exists on the database of vegetation data for South African savanna*. Report to the National Department of Agriculture (Directorate Resource Conservation). ARC Range and Forage Institute, Pretoria.
- THOMPSON, M.W., VAN DEN BERG, H.M., NEWBY, T.S. & HOARE, D.B. 2001. *Guideline procedures for national land-cover mapping and change monitoring*. Report no. ENV/P/C 2001-006 produced for Department of Water Affairs and Forestry, National Department of Agriculture and

- Department of Environment Affairs and Tourism. Copyright: Council for Scientific and Industrial Research (CSIR) and Agricultural Research Council (ARC).
- HOARE, D.B. 2003. Natural resource survey of node O R Tambo, using remote sensing techniques, Unpublished report and database of field data for ARC Institute for Soil, Climate & Water, ARC Range and Forage Institute, Grahamstown.
- HOARE, D.B. 2003. Short-term changes in vegetation of Suikerbosrand Nature Reserve, South Africa, on the basis of resampled vegetation sites. Gauteng Department of Agriculture, Conservation, Environment and Land Affairs, Conservation Division.
- BRITTON, D., SILBERBAUER, L., ROBERTSON, H., LUBKE, R., HOARE, D., VICTOR, J., EDGE, D. & BALL, J. 1997. The Life-history, ecology and conservation of the Brenton Blue Butterfly (*Orachrysops niobe*) (Trimen)(*Lycaenidea*) at Brenton-on-Sea. Unpublished report for the Endangered Wildlife Trust of Southern Africa, Johannesburg. 38pp.
- HOARE, D.B., VICTOR, J.E. & MARNEWIC, G. 2005. Vegetation and flora of the wetlands of Nylsvley River catchment as component of a project to develop a framework for the sustainable management of wetlands in Limpopo Province.

**Consulting reports:**

Total of over 320 specialist consulting reports for various environmental projects from 1995 – 2010.

**Workshops / symposia attended:**

- Workshop on remote sensing of rangelands presented by Paul Tueller, University of Nevada Reno, USA, VIIth International Rangeland Congress, 26 July – 1 August 2003, Durban South Africa.
- VIIth International Rangeland Congress, 26 July – 1 August 2003, Durban South Africa.
- BioMap workshop, Stellenbosch, March 2002 to develop strategies for studying vegetation dynamics of Namaqualand using remote sensing techniques
- South African Association of Botanists Annual Congress, Grahamstown, January 2002.
- 28<sup>th</sup> International Symposium on Remote Sensing of Environment, Somerset West, 27-31 March 2000.
- Workshop on Vegetation Structural Characterisation: Tree Cover, Height and Biomass, 28<sup>th</sup> International Symposium on Remote Sensing of Environment, Strand, 26 March 2000.
- South African Association of Botanists Annual Congress, Potchefstroom, January 2000
- National Botanical Institute Vegmap Workshop, Kirstenbosch, Cape Town, 30 September-1 October 1999.
- Sustainable Land Management – Guidelines for Impact Monitoring, Orientation Workshop: Sharing Impact Monitoring Experience, Zithabiseni, 27-29 September 1999.
- WWF Macro Economic Reforms and Sustainable Development in Southern Africa, Environmental Economic Training Workshop, development Bank, Midrand, 13-14 September 1999.
- 34<sup>th</sup> Annual Congress of the Grassland Society of South Africa, Warmbaths, 1-4 February 1999
- Expert Workshop on National Indicators of Environmental Sustainable Development, Dept. of Environmental Affairs and Tourism, Roodevallei Country Lodge, Roodeplaat Dam, Pretoria, 20-21 October 1998.
- South African Association of Botanists Annual Congress, Cape Town, January 1998
- Randse Afrikaanse Universiteit postgraduate symposium, 1997.
- South African Association of Botanists Annual Congress, Bloemfontein, January 1995.

**Referees:**

- Michele Pfab, Scientific Co-ordinator: Scientific Authority, Applied Biodiversity Research, South African National Biodiversity Institute, (012) 843 5025, **E-mail:** [M.Pfab@sanbi.org.za](mailto:M.Pfab@sanbi.org.za)
- Prof. Roy Lubke, Botany Department, Rhodes University, Grahamstown 6140 Tel: 0461-318 592. E-mail: [r.lubke@ru.ac.za](mailto:r.lubke@ru.ac.za)
- Prof. Richard Cowling, Botany Department, Nelson Mandela Metropolitan University, Tel (042) 298 0259 E-mail: [rmc@kingsley.co.za](mailto:rmc@kingsley.co.za)

<b>Name</b>	Stephan Hendrik Jacobs
<b>Profession</b>	Environmentalist
<b>Name of Firm</b>	SiVEST SA (Pty) Ltd
<b>Present Appointment</b>	Graduate Environmental Consultant
<b>Years with Firm</b>	Joined May 2015
<b>Date of Birth</b>	28 May 1991
<b>ID Number</b>	9105285065080
<b>Nationality</b>	South African



### Education

Pretoria Boys High, Johannesburg, South Africa, Matriculated 2009.

### Professional Qualification

BSc Hons Environmental Management and Analysis, (Post Graduate) University Of Pretoria Honours (2014).

BSc Environmental Sciences (Undergraduate) University Of Pretoria (2012-2013)

### Employment Record

May 2015 – current	SiVEST SA (Pty) Ltd – Graduate Environmental Consultant
Nov 2014 – Feb 2015	Sodwana Bay Fishing Charters – Assistant Manager
Oct 2014 – Mar 2015	Ufudu Turtle Tours – Tour Guide

### Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Good

### Key Experience

Stephan joined SiVEST in May 2015 and holds the position of Graduate Environmental Consultant in the Johannesburg office.

Stephan specialises in the field of Environmental Management and has been involved in the compilation of Environmental Impact Assessments (EIAs) and Basic Assessments (BAs). Stephan has also assisted extensively in the undertaking of field work and the compilation of reports for specialist studies such as surface water and visual impact assessments. Stephan also has experience in Environmental Compliance and Auditing and has acted as an Environmental Control Officer (ECO) for several infrastructure projects.

Stephan has been educated and achieved his degrees (BSc and BSc Hons) at the University of Pretoria in Environmental Sciences (Environmental Management & Analysis).

Throughout his time at SiVEST, Stephan has acquired the following skills:

- Strong computer skills (Work, excel, powerpoint etc);
- Strong Proposal and report writing skills;

- Report compilation skills for Environmental Impact Assessments (EIAs) and Basic Assessments (BAs);
- Report compilation skills for Environmental Management Plans/Programmes (EMPr);
- Compilation and conducting Visual Impact Assessments;
- Assisting in Surface Water / Wetland Delineations and Assessments.

Key experience includes:

- Environmental Impact Assessment (EIA) of small, medium and large-scale infrastructure projects,
- Basic Assessment (BA), of small, medium and large-scale infrastructure projects,
- Environmental Management Plans (EMPr), of small, medium and large-scale infrastructure projects,
- Proposal and tender compilation,
- Environmental Compliance and Auditing (ECO);
- Various site inspections, and
- Visual Impact Assessments (Field work and report compilation).

### Projects Experience

Stephan is responsible for the following activities: report writing, proposal writing, assisting in specialist surface water delineation and functional assessments, assisting in visual impact assessments and environmental compliance and auditing procedures. Current and completed projects / activities are outlined in detail below:

- Environmental Control Officer (ECO) for the Polokwane Integrated Rapid Public Transport System (IRPTS), Limpopo Province.
- Basic Assessment (BA) for the construction of a Non-Motorised Transport (NMT) Training and Recreational Park adjacent to the Peter Mokaba Stadium in Polokwane, Limpopo Province.
- Environmental Control Officer (ECO) for the Newmarket Retail Development, Gauteng Province.
- Visual Impact Assessment for the Helena Solar PV Plant, Northern Cape Province.
- Visual Impact Assessment for the Nsoko Msele Integrated Sugar Project, Swaziland.
- Surface Water Assessment for the Steve Thswete Local Municipality, Mpumalanga Province.
- Surface Water Delineation and Assessment for the proposed coal Railway Siding at the Welgedacht Marshalling Yard and associated Milner Road Upgrade near Springs, Ekurhuleni Metropolitan Municipality.

## **CURRICULUM VITAE: D G Paterson**

**SURNAME:** PATERSON  
**FIRST NAME(S):** David Garry  
**KNOWN AS:** Garry  
**DATE OF BIRTH:** 25-08-1959 in Bellshill, Scotland  
**NATIONALITY:** South African  
**I.D. No.:** 5908255258088  
**LANGUAGE PROFICIENCY:** English, Afrikaans (both fluent), French (poor)  
**MARITAL STATUS:** Married, one son

**ADDRESS:** Institute for Soil, Climate and Water  
Private Bag X79  
Pretoria 0001  
Republic of South Africa

**TEL.:** (012) 310 2601  
083 556 2458

**FAX:** (012) 323 1157

**E-MAIL ADDRESS:** [garry@arc.agric.za](mailto:garry@arc.agric.za)

### **ACADEMIC QUALIFICATIONS:**

- Matriculated: 1976, Dalziel High School, Motherwell, Scotland
- BSc (Hons) Geography, 1980, University of Strathclyde, Glasgow, Scotland
- MSc (Soil Science) *cum laude*, 1998, University of Pretoria

### **PROFESSIONAL CAREER:**

- 1981-1987: Soil Scientist: Soil and Irrigation Research Institute, Pretoria
- 1987-1992: Senior Soil Scientist: Soil and Irrigation Research Institute, Pretoria
- 1992-present: Senior Soil Scientist: ARC-Institute for Soil, Climate & Water

### **FIELDS OF SPECIALITY AND COMPETENCE:**

- Soil classification and mapping
- Soil interpretations
- Soil survey project management
- Environmental assessment
- Soil survey and land capability course presentation
- Ground penetrating radar

## **PUBLICATIONS (see attached list):**

- Three refereed articles (S.A. Journal of Plant and Soil)
- Nine Congress papers/posters
- S.A. Soil Classification (1991) (Member of working group)
- Seven 1:250 000 Land Type Maps
- Three Land Type Memoirs
- More than 200 soil survey reports and/or maps

## **COURSES COMPLETED:**

- Course in Project Management (University of Stellenbosch)
- Course in Junior Personnel Management (Dept of Agriculture)
- Course in Handling of Grievances and Complaints (Dept of Agriculture)
- Course in Marketing (ARC-ISCW)
- Course in National Qualifications Framework Assessment, ARC-CO
- Training Course in Ground Penetrating Radar (GSSI, USA)
- Introduction to ArcGIS 8, GIMS, 2004

## **PROFESSIONAL STATUS:**

- Registered Natural Scientist: Soil Science (SA National Council for Natural Scientific Professions) – registration number 400463/04
- Member of South African Soil Classification Working Group, 1990-present
- Convenor of South African Soil Classification Working Group, 2013-
- Member of Soil Science Society of South Africa (1982-present)
- President of Soil Science Society of South Africa (2005-2007)
- Member of South African Soil Survey Organisation (2000-present)
- Council Member of South African Soil Survey Organisation (2002-2003)
- Member of International Erosion Control Association
- Scientific Referee, S.A. Journal for Plant and Soil
- External Examiner, University of Pretoria, University of Witwatersrand, University of Venda

## **AWARDS:**

Best article on Soil Science, South African Journal for Plant and Soil, 2011

## **MISCELLANEOUS:**

- Editor, Soil Science Society newsletter, 1993-present
- Member, Clapham High School (Pretoria) Governing Body 1998-2002
- **Member, Northern Gauteng Football Referee's Association**
- Committee Member, Rosslyn Golf Club (Club Champion 2002 and 2007)

## **INTERESTS:**

Sport, especially golf and soccer; wildlife; reading; music

**REFEREES:**

Mr T.E. Dohse, ARC-Institute for Soil, Climate and Water.  
Tel: (012) 310-2504; 082 324 5389

Prof A.S. Claassens, Faculty of Plant Production and Soil Science, University of Pretoria  
Tel: (012) 420-3213; 084 581 6488

Prof M.C. Laker (retired), (012) 361-2900; 082 785 5295

## **PUBLICATIONS LIST:**

### ***Refereed Articles:***

**BÜHMANN, C., KIRSTEN, W.F.A., PATERSON, D.G. & SOBCZYK, M.E.**, 1993. Pedogenic differences between two adjacent basalt-derived profiles. 1. Textural and chemical characteristics. *S. Afr. J. Plant & Soil*, 10: 155-161

**BÜHMANN, C., KIRSTEN, W.F.A., PATERSON, D.G. & SOBCZYK, M.E.**, 1994. Pedogenic differences between two adjacent basalt-derived profiles. 2. Mineralogical characteristics. *S. Afr. J. Plant & Soil*, 11: 5-11

**PATERSON, D.G. & LAKER, M.C.**, 1999. Using ground penetrating radar to investigate spoil layers in rehabilitated mine soils. *S. Afr. J. Plant & Soil*, 16:131-134.

**PATERSON, D.G., BÜHMANN, C., PIENAAR, G.M.E. & BARNARD, R.O.**, 2011. Beneficial effect of palm geotextiles on inter-rill erosion in South African soils and mine dam tailings: a rainfall simulator study. *S. Afr. J. Plant & Soil*, 28: 181-189.

**PATERSON, D.G. & BARNARD, R.O., 2011.** Beneficial effect of palm geotextiles on inter-rill erosion in South African soils. *S. Afr. J. Plant & Soil*, 28: 190-197.

### ***Books:***

**PATERSON, D.G. & MUSHIA, N.M.**, 2011. Soil databases in Africa. *In: Handbook of Soil Science (2<sup>nd</sup> Edn)*. Ed. M.E. Sumner. Taylor & Francis, Boca Raton FL.

**SOIL CLASSIFICATION WORKING GROUP\***, 1991. Soil classification. A taxonomic system for South Africa. Institute for Soil, Climate & Water, Pretoria.

\* Co-author as member of Working Group

### ***Thesis:***

**PATERSON, D.G.**, 1998. The use of ground penetrating radar to investigate subsurface features in selected South African soils. Unpublished M Sc Thesis, University of Pretoria.

### ***Congress Papers:***

**PATERSON, D.G.**, 1987. The relationship between geology and soil type in the northern Kruger National Park. 14<sup>th</sup> Congress of the Soil Science Society of S.A. Nelspruit, 14-17 July 1987.

**PATERSON, D.G.**, 1990. A study of black and red clay soils on basalt in the northern Kruger National Park. 16<sup>th</sup> Congress of the Soil Science Society of S.A. Pretoria, 9-12 July 1990.

**PATERSON, D.G.**, 1992. The potential of ground penetrating radar as an aid to soil investigation. 17<sup>th</sup> Congress of the Soil Science Society of S.A. Stellenbosch, 28-30 Jan.1992.

**PATERSON, D.G.**, 1995. The complex soil mantle of South Africa. ARC Wise Land Use Symposium, Pretoria, 26-27 Oct. 1995



**PATERSON, D.G. & LAKER, M.C.**, 1998. Locating subsoil features with ground penetrating radar. 21<sup>st</sup> Congress of the Soil Science Society of S.A. Alpine Heath, 20-22 Jan. 1998.

**PATERSON, D.G.**, 2000. Mapping rehabilitated coal mine soils in South Africa using ground penetrating radar. Eighth International Conference on Ground Penetrating Radar, Gold Coast, Australia, 23-26 May 2000.

**PATERSON, D.G. & VAN DER WALT, M.**, 2003. The soils of South Africa from the Land Type Survey. 24<sup>th</sup> Congress of the Soil Science Society of S.A., Stellenbosch, 20-24 Jan. 2003

### ***Land Type Maps:***

**PATERSON, D.G.**, 1990. 1:250 000 scale land type map 2230 Messina. Dept. Agriculture, Pretoria.

**PATERSON, D.G. & HAARHOFF, D.**, 1989. 1:250 000 scale land type map 2326 Ellisras. Dept. Agriculture, Pretoria.

**PATERSON, D.G., PLATH, B.L. & SMITH, H.W.**, 1987. 1:250 000 scale land type map 2428 Nylstroom. Dept. Agriculture, Pretoria.

**PATERSON, D.G. & ROSS, P.G.**, 1989. 1:250 000 scale land type map 2330 Tzaneen. Dept. Agriculture, Pretoria.

**PLATH, B.L. & PATERSON, D.G.**, 1987. 1:250 000 scale land type map 2426 Thabazimbi. Dept. Agriculture, Pretoria.

### ***Land Type Memoirs:***

**PATERSON, D.G., PLATH, B.L. & SMITH, H.W.**, 1988. Field Investigation. In: *Land types of the maps 2426 Thabazimbi & 2428 Nylstroom. Mem. Agric. Nat. Res. S. Afr.* No. 10. Dept. Agriculture, Pretoria.

**PATERSON, D.G., SCHOEMAN, J.L., TURNER, D.P., GEERS, B.C. & ROSS, P.G.**, 1989. Field Investigation. In: *Land types of the maps 2330 Tzaneen & 2430 Pilgrim's Rest. Mem. Agric. Nat. Res. S. Afr.* No. 12. Dept. Agriculture, Pretoria.

**PATERSON, D.G.**, 1999. 1:250 000 land type survey of the former Ciskei (Unpublished). ISCW Report GW/A/99/24.

### ***Also:***

**PATERSON, D.G.**, 1992. Ground penetrating radar applications in USA and South Africa. Report on an official study tour to USA, 13-29 July, 1991. ISCW Report GW/A/92/8

**PATERSON, D.G.**, 2000. Report on official overseas visit to GPR2000 Conference, Broadbeach, Australia, 23-26 May, 2000. ISCW Report GW/A/2000/40

Plus ARC-ISCW Reports on:

- Ground penetrating radar investigations in: Kruger National Park; Enseleni, Natal; Weatherly, Maclear; Kleinkopje Mine

- Soil survey investigations at: Roodeplaat, Kathu, Steelpoort River, Palala River, Zeekoegat (Roodeplaat), Limpopo River, Lydenburg, Kendal, Clewer Sand (Witbank), Botha Sand (Witbank), Balmoral Colliery, Bafokeng (Rustenburg), Towoomba (Warmbaths), Hoefeld Stene (Middelburg), Quality Bricks (Witbank), Visagie Sand (Middelburg), Rosslyn, Coalbrook (Sasolburg), Stewart Coal (Delmas), Forzando Coal (Hendrina), Vaalgro (Vereeniging), Ratanda (Heidelberg), Elspark (Boksburg), Thorncliffe Mine (Steelpoort), Jan Smuts Quarry (Boksburg), Ennerdale (Phase I & II), Thokoza, North Riding, Natalspruit (Alberton), Arnot, Kroondal (Phase I & II), Ga-Rankuwa, Hartebeespoort Dam, Kosmos, Assen, Grasmere, Magalies Moot (Pretoria), Valpre (Paulpietersburg), Cargo Carriers (Sasolburg), Waterval (Rustenburg), Rayton, Bronkhorstspuit, Zwavelpoort (Pretoria), Pietersburg, Trojan Mine (Steelpoort), Platinum Highway (Rustenburg), Moutse, Centurion, Salique (Klaserie), Northam, Greenside Colliery (Witbank), South Deep Mine (Westonaria), Bank Colliery, Steelpoort Platinum, Gautrain Route (Pta/Jbg), Rietspruit Mine (Ogies), Potgietersrus Platinum, Atok Mine (Lebowa), Blue Ridge Mine (Groblersdal), Ngodwana, Estancia (Breyton), Twickenham Mine (Steelpoort), Marikana

**Name** Lynsey Rimbault

**Profession** Environmentalist

**Name of Firm** SiVEST SA (Pty) Ltd

**Present Appointment** Environmental Consultant:  
SiVEST Environmental Division

**Years with Firm** since August 2014

**Date of Birth** 10 April 1989

**ID Number** 8904100104087

**Nationality** South African



### Education

Matriculated 2007 (with distinction), Full Academic Colours, Hyde Park High School, Johannesburg, South Africa

### Professional Qualifications

MSc Biodiversity, Conservation and Management (University of Oxford 2012-2013)  
BSc (Hons) Geography (University of the Witwatersrand 2011)  
BA Geography and English (University of the Witwatersrand 2008-2010)

### Employment Record

Aug 2014 – to date SiVEST Environmental Division: Trainee Environmental Consultant  
Feb 2014 – July 2014 Kulima Integrated Development Solutions  
Jan 2012 – June 2012 Rayten Engineering Solutions

### Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Fluent	Fluent	Fluent

### Key Experience

Specialising in the field of Environmental Management.

Lynsey joined SiVEST in August 2014 and holds the position of Environmental Consultant in the Johannesburg Office. She has 1 year of work experience and is specialising in the management and compilation of Environmental Impact Assessments (EIAs) and Basic Assessment (BAs) primarily related to energy generation and electrical distribution projects.

Lynsey has worked previously for Kulima Integrated Development Solutions conducting research for a NEPAD project on Agricultural Adaptations to Climate Change. This involved four different farming sectors in four different provinces of South Africa. Prior to this Lynsey worked at Rayten Engineering Solutions in the field of air quality consulting, primarily in the mining sector.

Her academic achievements include; full academic colours in high school, elected prefect, Grade 11 dux scholar and four distinctions in matric. She is a member of the Golden Key International Honour Society for academic achievement. In her undergraduate degree she was top student in first and second year. During her Honours year she was awarded a post graduate merit award for excellence in academic performance. Lynsey was the recipient of the Allan and Nesta Ferguson Trust Scholarship for tuition at the University of Oxford.

### **Computer Literacy**

Proficient in Microsoft Office,  
ArcGIS,  
IDRISI,  
QGIS.

### **Projects Experience**

#### **Aug 2014 – to date**

#### **ENVIRONMENTAL IMPACT ASSESSMENT (EIA) / BASIC ASSESSMENT (BA)**

- Basic Assessment for the Ermelo-Richards Bay Coal Line Upgrade Project: Proposed development of the Madlanzini Main Transmission Station and Associated 88kV and 400kV turn in power lines, Mpumalanga Province.
- Environmental Impact Assessment for the proposed development of the Dwarsrug Wind Farm near Loeriesfontein, Northern Cape Province.
- Basic Assessment for the proposed Construction of the Mookodi Integration Phase 2 132kV Power Line from the Mookodi MTS to the new proposed Ganyesa Substation, North West Province.
- Environmental Impact Assessment for the proposed construction of the Nokukhanya Solar Photovoltaic Power Plant near Dennilton, Limpopo Province.

#### **OTHER**

- Environmental Scoping and Appraisal, as part of the SMEC Consortium, during the feasibility study for the Gautrain Extensions Project
- Authority Consultation and Environmental Screening Assessment for the proposed Lombardy East Housing Development, Gauteng Province.
- Application for Flora Permits for the removal and relocation of vegetation species for the Khobab and Loeriesfontein Wind Farm power line corridors.

#### **Feb 2014 – July 2014**

Conducting research on adoption of agricultural adaptation practices to climate change in four provinces of South Africa, through primary fieldwork and qualitative data collection. Research conducted under the auspices of the Comprehensive Africa Agriculture Development Programme (CAADP), a NEPAD programme. The research objective was to integrate and implement adaptation to climate change issues into agricultural development strategies.

- Identifying through specific entry points and snowball sampling at least 20 farmers per commodity group and location
- Conducting qualitative interviews with farmers on their farms or at other mutually agreed locations
- Identifying and interviewing any relevant local stakeholders
- Providing comprehensive notes on interviews, highlighting themes explored and emerging answers
- Providing final reports on each of the commodity groups explored and scorecards elaborating each adaptation observed.

**Jan 2012 – June 2012**

Environmental Scientist, responsible for air quality monitoring, project management dispersion modelling and air quality impact assessments, monitoring station siting for the Department of Environmental Affairs.

## CURRICULUM VITAE

Kerry Lianne Schwartz

**Name** Kerry Lianne Schwartz

**Profession** GIS Specialist

**Name of Firm** SiVEST SA (Pty) Ltd

**Present Appointment** Senior GIS Consultant:  
Environmental Division

**Years with Firm** 24 Years

**Date of Birth** 21 October 1960

**ID No.** 6010210231083

**Nationality** South African



### Professional Qualifications

BA (Geography), University of Leeds 1982

### Employment Record

1994 – Present SiVEST SA (Pty) Ltd - Environmental Division: GIS/Database Specialist.

1988 - 1994 SiVEST (formerly Scott Wilson Kirkpatrick): Town Planning Technician.

1984 – 1988 Development and Services Board, Pietermaritzburg: Town Planning Technician.

### Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Fluent	Fluent	Fluent

### Key Experience

Kerry is a GIS specialist with more than 16 years experience in the application of GIS technology in various environmental, regional planning and infrastructural projects undertaken by SiVEST.

Kerry's GIS skills have been extensively utilised in projects throughout South Africa in other Southern African Countries. These projects have involved a range of GIS work, including:

- Design, compilation and management of a demographic, socio-economic, land use, environmental and infrastructural databases.
- Collection, collation and integration of data from a variety of sources for use on specific projects.
- Manipulation and interpretation of both spatial and alphanumeric data to provide meaningful inputs for a variety of projects.
- Production of thematic maps and graphics.
- Spatial analysis and 3D modelling, including visual and landscape assessments.

## Projects Experience

### STRATEGIC PLANNING PROJECTS

Provision of database, analysis and GIS mapping support for the following:

- Water Plan 2025: Socio-economic, Land Use and Demographic Update – Umgeni Water (KwaZulu-Natal).
- Eskom Strategic Plan – Eskom (KwaZulu-Natal).
- Umgeni Water Quality Management Plan – Department of Water Affairs and Umgeni Water (KwaZulu-Natal).
- KwaZulu-Natal Development Perspective – Department of Economic Affairs (KwaZulu-Natal).
- Indlovu Regional Integrated Plan – Department of Local Government and Housing (KwaZulu-Natal).
- Umgeni Water and Sanitation Needs Analysis – Umgeni Water (KwaZulu-Natal).
- Metro Waste Water Management Plan – Durban Waste Water management, City of Durban (KwaZulu-Natal).
- KwaZulu-Natal Electrification Prioritisation Model – Eskom (KwaZulu-Natal).
- Umzinyathi Regional Development Plan – Umzinyathi Regional Council (KwaZulu-Natal).
- GIS driven model to assess future population growth in quaternary catchments under different growth scenarios – Umgeni Water (KwaZulu-Natal).
- Ubombo Master Water Plan Study – Mhlathuze Water Board (KwaZulu-Natal).
- Development strategy for local economic development and social reconstruction of the Germiston-Daveyton Activity Corridor – Eastern Gauteng Services Council (Gauteng).
- Structure Plan for the Cities of Beira and Dondo in Mozambique – World Bank.
- Land identification study for low cost housing in the Indlovu Region – Indlovu Regional Council (KwaZulu-Natal).
- Local Development Plan for Manzini – Manzini Town Council (Swaziland).
- Indlovu Project Prioritisation Model – Indlovu Regional Council (KwaZulu-Natal).
- Structure Plans for the Cities of Ndola and Luanshya - Ministry of Local Government and Housing (Zambia).
- Database development for socio-economic and health indicators arising from Social Impact Assessments conducted for the Lesotho Highlands Development Association – Lesotho.
- Development Plan for the adjacent towns of Kasane and Kazungula - Ministry of Local Government, Land and Housing (Botswana).
- Development Plan for the rural village of Hukuntsi - Ministry of Local Government, Land and Housing (Botswana).
- Provision of data platform for the spatial analysis of water supply, demand and affordability in Bulawayo – City of Bulawayo and NORAIID (Zimbabwe).
- Integrated Development Plans for various District and Local Municipalities including:
  - Nquthu Local Municipality (KwaZulu-Natal)
  - Newcastle Local Municipality (KwaZulu-Natal)
  - Amajuba District Municipality (KwaZulu-Natal)
  - Jozini Local Municipality (KwaZulu-Natal)
  - Umhlabuyalingana Local Municipality (KwaZulu-Natal)
- uMhlathuze Rural Development Initiative – uMhlathuze Local Municipality (KwaZulu-Natal).
- Rural roads identification – uMhlathuze Local Municipality (KwaZulu-Natal).
- Mapungubwe Tourism Initiative – Development Bank (Limpopo Province).
- Northern Cape Tourism Master Plan – Department of Economic Affairs and Tourism (Northern Cape Province).

- Spatial Development Framework for Gert Sibande District Municipality (Mpumalanga) in conjunction with more detailed spatial development frameworks for the 7 Local Municipalities in the District, namely:
  - Albert Luthuli Local Municipality
  - Msukaligwa Local Municipality
  - Mkhondo Local Municipality
  - Pixley Ka Seme Local Municipality
  - Dipaleseng Local Municipality
  - Govan Mbeki Local Municipality
  - Lekwa Local Municipality
- Land Use Management Plans/Systems (LUMS) for various Local Municipalities including:
  - Nkandla Local Municipality (KwaZulu-Natal)
  - Hlabisa Local Municipality (KwaZulu-Natal)
  - uPhongolo Local Municipality (KwaZulu-Natal)
  - uMshwathi Local Municipality
- Spatial Development Framework for uMhlathuze Local Municipality (KwaZulu-Natal).
- Spatial Development Framework for Greater Clarens – Maloti-Drakensberg Transfrontier Park (Free State).
- Local Spatial Development Framework for Brackenhurst and Brackendowns (Region 10) – Ekurhuleni Metropolitan Municipality (Gauteng).
- Housing Sector Plan – Ntambanana Local Municipality (KwaZulu-Natal).
- Land use study for the Johannesburg Inner City Summit and Charter – City of Johannesburg (Gauteng).
- Ezikhawini-Vuindlela Corridor study – uMhlathuze Local Municipality (KwaZulu-Natal).
- Port Durnford and Ezikhawini Rural Node study - uMhlathuze Local Municipality (KwaZulu-Natal).
- Port of Richards Bay Due Diligence Investigation – Transnet
- Jozini Sustainable Development Plan – Jozini Local Municipality (KwaZulu-Natal)
- Spatial Development Framework for Umhlabuyalingana Local Municipality (KwaZulu-Natal)

### **BUILT INFRASTRUCTURE**

- Construction Environmental Management Plan for transmission lines from Zeus substation to Mercury substation – Eskom.
- EIA and EMP for a 9km railway line and water pipeline for manganese mine – Kalagadi Manganese (Northern Cape Province).
- EIA and EMP for 5x 440kV Transmission Lines between Thyspunt (proposed nuclear power station site) and several substations in the Port Elizabeth area – Eskom (Eastern Cape Province).
- Environmental Impact Assessment for turn in lines and substation upgrading for Malelane substation – Eskom (Mpumalanga Province).
- Initial Scoping for the proposed 750km multi petroleum products pipeline from Durban to Gauteng/Mpumalanga – Transnet Pipelines.
- Detailed EIA for multi petroleum products pipeline from Kendall Waltloo, and from Jameson Park to Langtaagte Tanks farms –Transnet Pipelines.
- Environmental Management Plan (operational management plan) including visual impact assessment, noise impact assessment and flight path determination for the commercialization of Skukuza Airport – SANParks (Mpumalanga Province).
- Environmental Management Plan for copper and cobalt mine (Democratic Republic of Congo).
- EIA and Agricultural Feasibility study for Miwani Sugar Mill (Kenya).
- EIAs for Concentrated Solar and Photovoltaic power plants (Northern Cape).



- EIAs for Wind Farms (Northern Cape).
- EIAs for 132kV Distribution Lines in North West Province.

#### **STATE OF THE ENVIRONMENT REPORTING**

- 2008 State of the Environment Report for City of Johannesburg.
- Biodiversity Assessment – City of Johannesburg.

#### **STRATEGIC ENVIRONMENTAL ASSESSMENTS AND ENVIRONMENTAL MANAGEMENT FRAMEWORKS**

- SEA for Greater Clarens – Maloti-Drakensberg Transfrontier Park (Free State).
- SEA for the Marula Region of the Kruger National Park, SANParks.
- SEA for Thanda Private Game Reserve (KwaZulu-Natal).
- SEA for KwaDukuza Local Municipality (KwaZulu-Natal).
- EMF for proposed Renishaw Estate (KwaZulu-Natal).
- EMF for Mogale City Local Municipality, Mogale City Local Municipality (Gauteng).

#### **WETLAND STUDIES**

- Rehabilitation Planning for the Upper Klip River and Klipspruit Catchments, City of Johannesburg (Gauteng).
- Wetland Delineation and Assessment for the proposed Eskom CCGT Power Plant near Majuba Power Station – Eskom (Mpumalanga).

#### **VISUAL IMPACT ASSESSMENTS**

- Visual Impact Assessment for the proposed relocation of the Skukuza Conference Centre, SANParks.
- Visual Impact Assessment for the proposed re-commercialisation of the Skukuza Airport.
- Visual Impact Assessment for the proposed development of residential apartments in Ramsgate, KZN.
- Visual Impact Assessment for the redevelopment of the Newmarket Racecourse, Alberton, Gauteng
- Visual Impact Assessment for the Thyspunt Transmission Lines Integration Project
- Visual Impact Assessments for 5 Solar Power Plants in the Northern Cape
- Visual Impact Assessments for 2 Wind Farms in the Northern Cape
- Visual Impact Assessment for Mookodi Integration Project (132kV distribution lines)
- Landscape Character Assessment for Mogale City Environmental Management Framework

**Date of Birth:** 2 January 1987  
**Profession:** Development Economist  
**Specialisation:** Economic and Socio-Economic Impact Assessment  
**Years within Firm:** 1 Years  
**Nationality:** RSA  
**Years of Experience:** 4 Years  
**HDI Status:** White Female



### Education:

2013, University of Freestate	Post Graduate Diploma in Financial Planning
2009, University of Johannesburg	BCom (Hon) International Trade and Development Economics
2006 – 2008, University of Johannesburg	BCom Economics and Econometrics

### Professional Membership:

Language Proficiency:	Reading	Writing	Speaking
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Excellent

### Key Qualification

Mariette Steynberg completed her BCom degree in 2008 at the University of Johannesburg with a double major in Economics and Econometrics. She went on to complete a BCom Honours degree in 2009 majoring in International Trade and Development Economics. To further her capabilities in the field she successfully completed a Post Graduate Diploma in Financial Planning in 2013 while working as a trainee planner before relocating to Pretoria to pursue a career in Economics.

### Experience Record

<b>Project:</b> <b>Year:</b> <b>Location:</b> <b>Client:</b> <b>Project Features:</b>	Bayside Smelter Decommissioning: Economic Impact Assessment 2014 KwaZulu-Natal Acer Africa, Environmental Consultants <ul style="list-style-type: none"> <li>✓ Delineation of the affected study areas, as well as compilation of the economic baseline of these areas</li> <li>✓ Collection of the required data and impact modelling</li> <li>✓ Estimation of economic impacts associated with the loss of operations at Bayside</li> <li>✓ Estimation of economic impacts created by the four possible decommissioning scenarios</li> <li>✓ Interpretation of the potential impacts in the context of the affected environment</li> <li>✓ Comparison of identified impacts of each decommissioning scenario to determine most economically beneficial way forward</li> <li>✓ Provision of recommendations relating to the mitigation of potential negative impacts and the enhancement of likely benefits</li> <li>✓ Evaluation of the potential impacts following the pre-determined methodology for all cases pre and post the recommended mitigation measures</li> </ul>
<b>Position held:</b> <b>Activities Performed:</b>	Mariette Steynberg – Study area delineation, economic baseline compilation, Interpretation of the potential impacts, Comparison of the four scenarios to determine most beneficial way forward, provision of mitigation measures, impact evaluation. Urban-Econ Development Economists was appointed to undertake an economic impact assessment of the closure and decommissioning of the Bayside Aluminium Smelter located in Richards Bay in KwaZulu-Natal.
<b>Project:</b> <b>Year:</b> <b>Location:</b>	Gaurikwa and Ankerlig Open Cycle Gas Turbine: Macro-economic impact assessment 2014 / 15 National

Client:	Aldworth Mbalati – African International Energy PLC
Project Features:	<ul style="list-style-type: none"> <li>✓ Assessment of project alignment with government objectives and strategies</li> <li>✓ Collection of project data</li> <li>✓ Economic modelling</li> <li>✓ Assessment of potential macro-economic benefits</li> <li>✓ Quantification of potential socio-economic benefits</li> </ul>
Position held:	Mariette Steynberg – Governmental policy and strategy alignment, Project motivation and history, Macro-economic impact assessment, Socio-economic impact assessment.
Activities Performed:	Urban-Econ was appointed to perform a macro-economic and socio-economic benefits analysis of the proposed conversion of the Gaurikwa and Ankerlig power plants to Open Cycle Gas Turbine.
Project:	Colenso power station, coal mine, and auxiliary infrastructure: Socio-economic Impact Assessment 2015
Year:	2015
Location:	KwaZulu-Natal
Client:	EcoPartners Pty (Ltd)
Project Features:	<ul style="list-style-type: none"> <li>✓ Compilation of the socio-economic profile for the area</li> <li>✓ Site visit, interview and development of the baseline of the affected parties</li> <li>✓ Economic modelling</li> <li>✓ Assessment of the strategic and socio-economic benefits and possible negative impacts associated with the project during its construction, operational and closure phases</li> <li>✓ Determination of the net effect of the proposed development on the socio-economic environment</li> <li>✓ Needs and Desirability Analysis</li> <li>✓ Inputs into the Environmental Management Plan - the management and mitigation of potential impacts and the enhancement of benefits</li> </ul>
Position held:	Mariette Steynberg – Socio-economic profile compilation, Baseline of the affected parties (land uses), Socio-economic impact assessment, Needs and Desirability Analysis, Determination of each of the project component's net effect on the environment, Impact analysis according to pre-determined methodology, provision of mitigation and enhancement measures.
Activities Performed:	Urban-Econ was appointed to undertake socio-economic impact assessment studies for the Colenso power station and auxiliary infrastructure component of the project, as well as for the coal mine component.

Other Projects:

- Department of Science and Technology – technical evaluation of proposals: Urban-Econ Development Economists was appointed by the DST to undertake a technical assessment of proposal submitted for their General Budget Support Program (GBS). The ten proposals were analysed and advice was provided on whether or not the proposed projects were suitable for funding.
- Eskom, St Faiths Agricultural Economic Impact Study: Urban-Econ Development Economists was appointed by ACER (Africa) Environmental Consultants on behalf of Eskom Holdings (SOC) Limited to undertake an Agricultural Economic Impact Assessment for the proposes St. Faiths 400 kV substation and associated 400 kV and 132 kV distribution lines, assisting in making the decision with respect to the most preferred corridor alternative and site options taking into account potential positive and negative impacts on the agricultural potential of the affected areas.
- Letsatsi Power Project: Community Needs Analysis: Urban-Econ Development Economists was appointed to assist with defining an Economic Development plan that speaks to the scope of the managing company's compliance commitments. It involved the development of comprehensive community profiles and provision of recommendations to address identified gaps.
- Dwarsrug Socio Economic Impacts Assessment: Scoping phase input: Urban-Econ Development Economists was appointed to perform a SEIA for the Dwarsrug Wind Farm near Loeriesfontein in the Northern Cape province of South Africa.
- Gamagara River Flow Restoration Project: Economic Baseline Report: Urban-Econ development Economists was appointed to provide an economic baseline report for the Gamagara River Flow Restoration Project near Sishen mine. The baseline study was undertaken to guide the assessment during the next phase.
- Kotulo Tsatsi Energy Solar Park: Economic Impact Assessment: Urban-Econ Development Economists was appointed to undertake an economic impact assessment study for the proposed construction of the Kotulo Tsatsi Concentrated Solar Power (CSP) Energy Park in the Northern Cape Province.

- Weltevreden Open Cast Coal Mine: Economic Impact Assessment: Urban-Econ Development Economists was appointed to perform an economic impact assessment on the construction and operation of the proposed Weltevreden Coal Mine in Mpumalanga.
- SANEDI Energy Efficiency in the Building Sector: Policy Analysis: Urban-Econ was appointed to undertake an EE policy assessment to determine the effectiveness and efficiency of existing policies and provide recommendations on the identified shortcomings. Mariette's role in the project was to compile international best practices with regards to EE policies in the residential and commercial buildings sectors.

## Countries of Work Experience:

- South Africa

## References:

Elena Broughton Email: [elena@urban-econ.com](mailto:elena@urban-econ.com) Cell Phone: +27 (0) 82 463 2325  
Dr. JL Oberholzer Email: [judex@urban-econ.com](mailto:judex@urban-econ.com) Cell Phone: +27 (0) 82 770 8770

## Contact Details:

Mariette Steynberg Email: [mariette@urban-econ.com](mailto:mariette@urban-econ.com) Cell Phone: +27 (0) 79 029 5586

**Name** Shaun Taylor

**Profession** Environmental Scientist

**Name of Firm** SiVEST SA (Pty) Ltd

**Present Appointment** Environmental Scientist:  
Environmental Division

**Date of Birth** 02 February 1984

**ID Number** 8402025020082

**Nationality** South African



### Education

MSc – Aquatic Health  
 BSc (Hons) – Geography & Environmental Studies  
 BA – Geography and Environmental Science

### Professional Qualifications

MSc – Aquatic Health, Johannesburg University  
 Research Project: The physico-chemical and biological characteristics of selected seasonal pans in the Kruger National Park, South Africa

BSc (Hons) – Geography & Environmental Studies, Witwatersrand University (First class)  
 Research Project: Sitatunga Habitat Suitability in the Okavango Delta, Botswana

BA – Geography & Environmental Science, Monash University South Africa (Distinction)

Certification in Wetland Delineation and Rehabilitation Training Course from the School of Continuing Education, University of Pretoria

### Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Excellent	Excellent	Excellent
Afrikaans	Fair	Fair	Fair

### Employment Record

Oct 2010 – Present SiVEST SA (Pty) Ltd Environmental Division – Environmental Scientist  
 Oct 2009 – Mar 2010 Envirokey cc – Junior Environmental Consultant and GIS support  
 Aug 2007 – Sep 2009 Holgate, Meyer and Associates Environmental Management Services  
 – Junior Environmental Consultant

## Key Experience

Shaun joined SiVEST in October 2010 and is based in the Johannesburg office in the capacity of an Environmental Scientist.

Shaun has a passion for working in the environmental and water (wetlands) field. From an environmental management perspective, Shaun has completed a number of environmental impact assessments, basic assessments, strategic environmental assessments, environmental management programmes/plans, various exemption and amendment applications, and conducted environmental auditing. Within the water field, Shaun has undertaken water use licensing (WUL) and WUL compliance monitoring for various developments. In terms of specialist work, Shaun has completed numerous surface water (including wetlands and riparian) assessments for renewable energy projects, linear projects as well as site specific projects.

Through his time at SiVEST, Shaun has acquired the following skills:

- Strong computer skills (Word, excel, powerpoint etc.);
- Strong proposal and report writing skills
- Surface water assessment techniques;
- Environmental Impact Assessments;
- Environmental Management Programmes/Plans;
- Environmental Compliance and Auditing;
- Environmental Amendment and Exemption Applications;
- Water Use License Applications.

## Projects Experience

Shaun is responsible for the following activities: conducting EIA, BA and WULA processes, undertaking amendment and exemption applications, general project management, report writing, proposal writing, invoicing, conducting specialist surface water delineation and functional assessments, environmental and water related compliance monitoring and auditing. Current and completed projects / activities are outlined in detail below:

### STRATEGIC ENVIRONMENTAL ASSESSMENTS

- Molemole Local Municipality Strategic Environmental Assessment, Limpopo Province (2014/2015).

### ENVIRONMENTAL IMPACT ASSESSMENTS

- Mookodi Integration Project Environmental Impact Assessment (2011/2012);
- Noupoot Wind Farm, Northern Cape Province (2011/2012);
- Loeriesfontein Wind Farm and PV Plant, Northern Cape Province (2011/2012);
- Renosterberg Wind Farm and PV Plant near De Aar, Northern Cape Province (2012).

### BASIC ASSESSMENTS

- Proposed Installation of a 500m<sup>3</sup> Bulk Storage Fuel Oil Tank at Grootvlei Power Station, Mpumalanga Province (2011/2012);
- Proposed development of a 19MW Photovoltaic Solar Power Plant near Kimberley, Northern Cape Province (2012);
- Proposed development of a 19MW Photovoltaic Solar Power Plant near Danielskuil, Northern Cape Province (2012);

## CURRICULUM VITAE

Shaun Taylor

- Frankfort Strengthening Project: 88kV Power Line from Heilbron (via Frankfort) to Villiers, Free State Province (2013);
- Wilger 132kV Overhead Distribution Power Line, Northern Cape Province (2013/2014);
- Limestone 1 – 132kV Overhead Distribution Power Line, Northern Cape Province (2013/2014);
- Limestone 2 – 132kV Overhead Distribution Power Line, Northern Cape Province (2013/2014);
- Proposed Tweespruit to Welroux Power Line and Substations, Free State Province (2014/2015);
- Sir Lowry's Pass River Flood Alleviation Project, Western Cape Province (2014/2015).

### ENVIRONMENTAL MANAGEMENT PLANS / PROGRAMMES

- Eskom Thyspunt Nuclear Integration Project Environmental Management Plan – Transmission Infrastructure (2011);
- Eskom Thyspunt Nuclear Integration Project Environmental Management Plan – Substations (2011);
- Mookodi Integration Project Environmental Management Plan – Transmission Infrastructure and Substations (2011/12);
- Noupoot Wind Farm Environmental Management Programme (2012);
- Environmental Management Programme for a 500m<sup>3</sup> Bulk Storage Fuel Oil Tank at Grootvlei Power Station (2012);
- Environmental Management Programme for a 19MW Photovoltaic Solar Power Plant near Kimberley, Northern Cape Province (2012);
- Environmental Management Programme for a 19MW Photovoltaic Solar Power Plant near Danielskuil, Northern Cape Province (2012);
- Karowe Diamond Mine Environmental Management Plan Review and Update, Boteti District, Botswana (2012);
- Environmental Management Programme for the Frankfort Strengthening Project: 88kV power line from Heilbron (via Frankfort) to Villiers, Free State Province (2013);
- Environmental Management Programme for the Wilger 132kV Overhead Distribution Power Line, Northern Cape Province (2013);
- Environmental Management Programme for the Limestone 1 – 132kV Overhead Distribution Power Line, Northern Cape Province (2013);
- Environmental Management Programme for the Limestone 2 – 132kV Overhead Distribution Power Line, Northern Cape Province (2013);
- Environmental Management Programme for the Tweespruit to Welroux Power Line and Substations, Free State Province (2014/2015).

### AMENDMENT APPLICATIONS

- Loeriesfontein 140MW Wind Farm, Northern Cape Province: Substantive and Minor Amendments (2013/2014);
- Khobab 140MW Wind Farm, Northern Cape Province: Substantive and Minor Amendments (2013/2014);
- Loeriesfontein 50MW Wind Farm, Northern Cape: Environmental Authorisation Minor Amendments (2013/2014);
- Loeriesfontein 100MW Solar Photovoltaic Plant, Northern Cape: Environmental Authorisation Minor Amendments (2013/2014);
- Noupoot 188MW Wind Farm, Northern Cape: Environmental Authorisation Minor Amendments (2013/2014).

### ENVIRONMENTAL CONSTRAINTS\FATAL FLAWS

- Social Housing Projects in Sasolburg and Secunda Final Environmental Constraints Analysis Report (2011);

## CURRICULUM VITAE

Shaun Taylor

- Establishment of Wind Farms in Northern and Eastern Cape Provinces Environmental Constraints Analysis Report (2011).

### ENVIRONMENTAL AND WATER USE LICENSE COMPLIANCE AUDITING

- Environmental Compliance Auditing for the Nigel Substation to Jameson Park (Inland Terminal 2) 88kV power lines – Construction Phase (2011);
- Water Use License Compliance Auditing for Grootvlei Power Station, Mpumalanga Province, South Africa (2012);
- Environmental Compliance Auditing for the Meadow Feeds Standerton Broiler Feed Mill, Mpumalanga Province (2012/2013);
- Transnet Rail WUL Audit, (2014);
- Kusile Power Station Armcors WUL Audit (2014);
- Kusile Power Station Ash Dump WUL Audit (2014);
- Kusile Power Station Pollution Dams WUL Audit (2014);
- Kusile Power Station Stream Diversion and Water Pipeline Crossings WUL Audit (2014/2015).

### WETLAND AND RIPARIAN DELINEATION AND FUNCTIONAL ASSESSMENTS (RECENT)

- Approximately 40 wetland and riparian delineations and functional assessments for renewable energy, linear and site specific developments from 2010-2013 (Full list available on request).
- Mamatwan Manganese Mine, Northern Cape Province: Surface Water Assessment (2014);
- Two 5MW Photovoltaic Plants, Free State Province: Surface Water Assessment (2014);
- Dwarsrug Wind Farm, Northern Cape Province: Surface Water Assessment (2014);
- Manzimtoti Sewer Line Project, Kwa-Zulu Natal Province: Surface Water Assessment (2014);
- Compensation Flats Development, Kwa-Zulu Natal Province: Surface Water Assessment (2014);
- Tinley Manor South Road Development, Kwa-Zulu Natal Province: Surface Water Assessment (2014);
- Ntuzuma Sewer Line Project, Kwa-Zulu Natal Province: Surface Water Assessment (2014);
- Esphiva Sewer Line Project, Kwa-Zulu Natal Province: Surface Water Assessment (2014);
- Frankfort Wetland Walk-down Assessment, Free State Province (2014);
- Grootvlei Power Station Wetland Assessment, Mpumalanga Province (2014/2015).

### WETLAND AND RIPARIAN REHABILITATION / POST-REHABILITATION / AUDITING ASSESSMENTS

- Post-rehabilitation Assessment of Three Wetland Crossing Sites for Chemwes (Pty) Ltd for the Re-working of a Tailings Dam Project near Stilfontein, North West Province, South Africa (2011);
- Wetland and River Rehabilitation Plan (2011);
- Post-rehabilitation Assessment of the Inland New Multi-Purpose Pipeline in the Mpumalanga and Gauteng Provinces of South Africa (2012);
- John Ross Highway Wetland Rehabilitation Plan (2014).

### WATER USE LICENSES

- Integrated Water Use License Application for the Construction of a CSP and CPV/ PV Plant in De Aar, Northern Cape Province of South Africa (2010);
- Water Use License for Ga-rankuwa Substation, Gauteng Province (2013);
- Water Use License for Klevebank to Dalkieth 88kV Power Line, Gauteng Province (2013);
- Water Use License Application for the Frankfort Strengthening Project: 88kV Power Line from Heilbron (via Frankfort) to Villiers, Free State Province (2014/2015);
- Water Use Licensing for the Integrated Polokwane Rapid Public Transport Network (2014/2015).



**ENVIROKEY CC - JUNIOR ENVIRONMENTAL CONSULTANT AND GIS SUPPORT - OCT 2009 – MAR 2010**

Responsible for managing basic assessments, report writing, conducting specialist wetland assessments, auditing procedures and GIS mapping. Full list of activities completed available on request.

**JUNIOR ENVIRONMENTAL CONSULTANT AUG 2007 – SEP 2009**

Responsible for managing basic assessments, report writing, conducting specialist wetland assessments, environmental auditing procedures and GIS mapping. Full list of activities completed available on request.

**Conferences and Publications**

Taylor, S. R., 2008: A Critical Review of Strategic Environmental Assessment in South Africa and looking towards Future Considerations, presented at the South African Students Geography Conference, University of Cape Town, Cape Town.

**Academic and Work Related Achievements**

- Awarded Monash Dean's recognition award for outstanding academic results for second semester of 2006;
- Awarded Monash Dean's recognition award for outstanding academic results for first semester of 2007;
- Awarded Monash Dean's recognition award for outstanding academic results for second semester of 2007;
- Awarded Golden Key membership and certificate to the International Honours Society for outstanding academic achievements in undergraduate studies for Monash 2008;
- Awarded Study Sponsorship from Holgate, Meyer and Associates for Honours study in 2008/09;
- Awarded Certificate of Merit from University of Witwatersrand for outstanding work for the course of Honours in 2009/10;
- Awarded Merit Bursary for MSc from the University of Johannesburg 2010 for excellent academic results;
- Numerous short-course certificates (Grass identification, wildflower identification, veld management, water use licensing).

## CURRICULUM VITAE

Rebecca Thomas

<b>Name</b>	Rebecca Thomas
<b>Profession</b>	Senior Environmental Consultant
<b>Name of Firm</b>	SiVEST SA (Pty) Ltd
<b>Present Appointment</b>	Senior Environmental Scientist
<b>Years with Firm</b>	2 Years
<b>Date of Birth</b>	21 July 1981
<b>ID No.</b>	8107210457086
<b>Nationality</b>	South African



### Education

University of Witwatersrand  
Wits Business School

### Professional Qualifications

Bachelor of Science (Environmental Science): University of Witwatersrand, 2002  
 Postgraduate Diploma in Business Management (PDM): Wits Business School, 2011  
 GIBB's Project Leadership Programme, 2010

### Employment Record

Oct 2009 – Apr 2012	Arcus GIBB (Pty) Ltd – Johannesburg Regional Coordinator and Senior Environmental Scientist. Responsible for leading and providing scientific services for a range of environmental projects including EIAs, environmental planning, environmental feasibility studies, and environmental fatal flaw assessments.
2008 - 2009	Parsons Brinkerhoff Africa (Pty) Ltd Environmental Team Leader Environmental Team Leader responsible for various EIAs for the development of numerous energy related projects within South Africa and Botswana, namely coal-fired power stations and electrical transmission power lines. Tasks included client liaison, financial, programme and staff management and managing and contributing to the drafting of Environmental Impact Reports.
2004 - 2008	Bohlweki Environmental/SSI Engineers and Environmental Consultants Environmental Consultant An environmental consultant active in Environmental Impact Assessments, Environmental Monitoring, Environmental Management Programmes and Environmental Management Systems

### Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Fluent	Fluent	Fluent
Afrikaans	Fair	Good	Fair

## Key Experience

Rebecca is an Environmental Scientist with 9 years experience. She specialises in the overall management and compilation of Environmental Impact Assessments (EIAs) and Environmental Management Programmes (EMPs) primarily related to energy generation and electrical transmission projects. She furthermore has been involved in undertaking and managing Public Participation Processes, Consultation, Environmental Scans and Fatal Flaw / Feasibility Studies and independent review of environmental projects. Some of the projects she has worked on recently include EIAs for the proposed 300 MW Caledon Wind Farm, proposed 30 MW Wind Farm at St. Helena Bay and the Bantamsklip 400 kV Transmission Power Lines all within the Western Cape Province. She was also recently appointed as one of the advisors in strategic environmental matters for ACSA. Rebecca has also completed a Post Graduate Diploma in Business Management (PDM), with the aim of bringing business and project management skills to her projects and division as a whole. From a business administration side, Rebecca is keenly involved in the financial performance, workload and resource planning, quality management and proposal administration for the Johannesburg Environmental Division.

Internationally, Rebecca has work experience in the following countries:

- Botswana
- Tanzania
- Morocco
- Netherlands

## Projects Experience

### ENVIRONMENTAL MANAGEMENT AND IMPACT ASSESSMENT

Responsible for managing the client and a consulting team to ensure that the EIA process was implemented correctly, on schedule and within budget, the EIA process includes applications, baseline assessments and EIA reports.

- Environmental Advisory Services for the Moloto Development Corridor (MDC) Project which is located between the City of Tshwane Local municipality in Gauteng Province and Groblersdal, Limpopo Province, traversing Mpumalanga Province. Project Leader, SMEC/VelaVKE, 2012 - Current
- 3 Year Appointment: Environmental Management Compliance for the Integrated Rapid Transit project for Polokwane Municipality. Project Leader, City of Polokwane, 2013 - Current
- EIA and EMP for the proposed Thyspunt Transmission Lines Integration Project (TTLIP) for a conventional nuclear power station and associated infrastructure at the Thyspunt site in the Western Cape (Nuclear 1). The project proponent is the Transmission Division of Eskom Holdings SOC Limited. The EIA includes the screening and selection of suitable corridors, as well as a scoping process and detailed Environmental Impact Assessment. The project includes detailed specialist studies, including social, economic, visual and biophysical, EIA process, public consultation and legal. Senior scientist and project leader. Eskom Transmission, 2012 - ongoing.
- EIA and EMP for the proposed 150 MW Renosterberg Wind Energy Company (RVEC) Wind Farm and 75 MW Solar Photovoltaic (PV) Plant, Northern Cape Province. The EIA includes the scoping process and detailed environmental impact assessment. The project includes detailed specialist studies such as social, visual, noise, heritage and biophysical as well as a full public participation process. Senior scientist and project leader. RVEC, 2012 - Current
- EIA and EMP for the proposed Eastside Junction Mixed Use Development near Delmas, Mpumalanga Province. The EIA includes the scoping process and detailed environmental impact assessment. The project includes detailed specialist studies such as social, visual,

## CURRICULUM VITAE

Rebecca Thomas

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heritage and biophysical as well as a full public participation process. Senior scientist and project leader. Abland, 2012 – Current

- Environmental Authorisation (EA) Amendment for the proposed Droogfontein 2 and Droogfontein 2 Photovoltaic (PV) Plants near Kimberley, Northern Cape Province. The amendment application included compilation of a motivation for amendment report and public participation as advised by the Department of Environmental Affairs (DEA). Senior scientist and project leader. Mainstream Renewable Power, 2012
- Basic Assessment (BA) processes for the proposed construction of 132 kV power lines required to connect the Droogfontein 2 and Droogfontein 3 PV Plants to the National Electricity Grid. Senior scientist and project leader. Mainstream Renewable Power, 2012
- EA Amendment for the proposed De Aar 2 PV Plants near De Aar, Northern Cape Province. The amendment application included compilation of a motivation for amendment report and public participation as advised by the DEA. Senior scientist and project leader. Mainstream Renewable Power, 2012
- EIA and EMP for the proposed South African Nuclear Energy Corporation (Necsa) Dedicated Isotope Production Reactor (DIPR) at the Pelindaba Site near Hartebeespoort in the North West Province. The EIA includes the scoping process and detailed environmental impact assessment. The project includes detailed specialist studies such as social, visual and air quality as well as a full public participation process. Senior scientist and project leader. Necsa, September 2011 – April 2012.
- Environmental advisory services and permitting process for the Medupi Power Station in Lephalale, Limpopo Province. The project includes extension of borrow pit permits, applications for new borrow pit permits, clarification and justification for the need of waste, water and NEMA permitting requirements, as well as the development of a sustainability strategy for the short, medium and long term construction and operation phases of the power station. Senior scientist and project leader. Eskom Generation, September 2011 – April 2012.
- EIA for the proposed 25 MW Community Wind Farm in St Helena Bay, Western Cape Province. The EIA includes the scoping process and detailed environmental impact assessment. The project includes detailed specialist studies such as social, visual and biophysical as well as a full public participation process. Senior scientist and project leader. Just Energy, October 2010 – February 2012.
- EIA for the proposed 300 MW Caledon Wind Farm, Western Cape Province. The EIA includes the scoping process and detailed environmental impact assessment. The project includes detailed specialist studies such as social, visual and biophysical as well as a full public participation process. Senior scientist and project leader. Caledon Wind, 2010 - 2012
- Environmental Screening Studies for the PRASA Rail Upgrade Project – Maintenance Depots and Staging Yards – 21 sites across Gauteng, Western Cape and KwaZulu Natal Provinces. Environmental Project Leader and Reviewer. VelaVKE. February 2012.
- Environmental advisory services and environmental planning for the ACSA OR Tambo International Airport Midfield Development Project. The project includes review of existing Environmental Authorisations for recommencement of works put on hold, strategic planning for future EIA requirements, including an overall communication strategy to be adopted by ACSA. Senior Environmental Scientist. Airports Company South Africa (ACSA). 2009 – April 2012.
- Basic Assessment (BA) for the proposed PPC Dwaalboom Boiler Ash Storage Facility. This BA includes the compilation of a Basic Assessment Report and application, public consultation process and environmental management plan for submission to the Department of Environmental Affairs (DEA). Senior scientist and project leader. PPC, 2010.

## CURRICULUM VITAE

Rebecca Thomas

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- Basic Assessment (BA) for the proposed Ekurhuleni Nyoni Regional Park upgrade in Vosloorus, Gauteng Province. This BA includes the compilation of a Basic Assessment Report and application, public consultation process and environmental management plan for submission to the Gauteng Department of Agricultural and Rural Development (G DARD). Senior scientist and project leader. Ekurhuleni Metropolitan Municipality, 2010.
- EIA for the proposed reclamation and treatment of Gaborone (Botswana) wastewater for potable use, this study involved a number of specialist studies and extensive public consultation. Senior scientist. Water Utilities Corporation (WUC), 2010.
- Senior scientist for three EIAs for the Botswana Water Utilities Corporation (WUC). The EIAs are for the upgrading of the Sowa, Jwaneng and Lobatse Water Supply Master Plans. These EIAs are located throughout Botswana and for each includes a detailed scoping and public consultation process, compilation of an environmental management plan and undertaking of identified detailed specialist studies required for the Department of Environmental Affairs decision making, namely visual and heritage studies. Senior scientist. Water Utilities Corporation (WUC), 2010.
- Environmental Screening Study for the proposed co-generation plant to be established at Saldanha Mittal, Western Cape Province. This study included the identification of environmental fatal flaws and licenses required in terms of the proposed project as well as providing a plan indicating how to proceed with the project. Senior scientist and project leader. Exxaro, 2010.
- Environmental Screening Study for the Robertson Community Wind Farm for Just Energy, Western Cape Province. This study included the identification of environmental fatal flaws and licenses required in terms of the proposed project as well as providing a plan indicating how to proceed with the project. Senior scientist and project leader. Just Energy, 2010.
- EIA and EMP for the proposed transmission lines (Bantamsklip – Kappa 765 kV and Bantamsklip – Bacchus, Bacchus - Kappa and Bacchus – Muldersvlei 400 kV) for a conventional nuclear power station and associated infrastructure at the Bantamsklip site in the Western Cape (Nuclear 1). The project proponent is the Transmission Division of Eskom Holdings Limited. The EIA includes the screening and selection of suitable corridors, as well as a scoping process and detailed environmental impact assessment. The project includes detailed specialist studies, including social, economic, visual and biophysical, EIA process, public consultation and legal. Senior scientist and project leader. Eskom Transmission, 2009 ongoing.
- Powerline walkdown assessment and environmental management plan for the Eskom Watershed Mmabatho 132 kV transmission line, North West Province. Senior scientist and project leader. Eskom Distribution, 2010.
- EIA for the proposed Mulilo Coal Fired Power Station and associated transmission lines near Musina, Limpopo Province. Environmental project co-ordinator. Mulilo Power, 2008 – 2009.
- Environmental Fatal Flaws Analysis for the proposed Sekoko Coal Fired Power Station and associated transmission lines near Lephalale, Limpopo Province. Senior scientist. Sekoko Resources, 2009.
- Environmental Fatal Flaws Analysis for the proposed Mulilo Coal Fired Power Station and associated transmission lines near Musina, Limpopo Province. Senior scientist. Mulilo Power, 2009
- EIA for the proposed Mmamantswe Coal Fired Power Station, associated transmission lines and coal mine, Kgatleng District, Botswana. Senior scientist and project leader. Aviva Corporation, 2008 – 2009.

## CURRICULUM VITAE

Rebecca Thomas

- Environmental Fatal Flaws Analysis for five proposed Investec Wind Farm sites within the Northern Cape Province. Project leader. Investec, 2008.
- EIA for the proposed Upgrade of the Metal Recovery Crushing and Screening Plant at the ArcelorMittal Vanderbijlpark Works, Gauteng Province. Project leader. ArcelorMittal, 2008
- EIA for the proposed extension of the hydra substation and the proposed construction of a new 765 kV transmission power line between the Hydra and Gamma Substations, Northern Cape Province. Environmental scientist. Eskom Transmission, 2007 – 2008.
- EIA for the proposed Mercury – Garona 400 kV transmission power line, traversing the Free State, North West and Northern Cape Province. Environmental scientist. Eskom Transmission, 2007 – 2008.
- EIA for the proposed Atlantis OCGT Power Station and associated 400 kV power lines, Western Cape Province. Environmental scientist. Eskom Transmission, 2007 – 2008.
- Environmental Scoping Study for the proposed 132 kV sub transmission line from Mayfern Traction Substation to Delta Substation in Nelspruit, Mpumalanga Province. Environmental scientist. Eskom Distribution, 2006 – 2007.
- Environmental Scoping Study for the proposed 132 kV sub transmission line between Witkloof Substation and the proposed new Thuli Substation, Carolina, Mpumalanga Province. Environmental scientist. Eskom Distribution, 2006 – 2007.
- Environmental Scoping Study for the proposed 132 kV sub transmission line from Kabokweni Substation to the proposed new Hlau Hlau Substation, Mpumalanga Province. Environmental scientist. Eskom Distribution, 2006 – 2007.
- Environmental Scoping Study for the proposed 132 kV sub transmission line from Kiepersol Substation to Hazyview Traction Substation and upgrading of Kiepersol Substation, Mpumalanga Province. Environmental scientist. Eskom Distribution, 2005 – 2007.
- Environmental Scoping Study for the proposed 132 kV sub transmission lines and proposed new substation to Zandfontein, Mpumalanga Province. Environmental scientist. Eskom Distribution, 2005 – 2006.

### **STAND ALONE ENVIRONMENTAL MANAGEMENT PLANS / PROGRAMMES**

Project management, management of specialist's and compilation of the following projects included:

- Environmental Management Programme and Environmental Control Officer services for the Orange Farm Roads Upgrade Project, Gauteng Province. Senior Environmental Scientist and ECO. 2012
- Environmental Control Officer services for the Driezek Housing Upgrade Project, Gauteng Province. ECO. 2011
- Environmental Management Plan for the Morupule B - Phokoje 400 kV Transmission line, Botswana. Project leader. Botswana Power Corporation (BPC), 2008
- Environmental Management Plan for the proposed Phase 1 and 2 developments of the Gardner Ross Golf and Country Estate project, integrating the current Environmental Management Plan in place for phase 1. Environmental Scientist. Gardener Ross, 2005 - 2006

**AIR QUALITY IMPACT ASSESSMENT**

Involved with the Air Quality Impact Assessments and Dispersion Modelling for the following projects:

- Air Quality Impact Assessment for the proposed Zimplats Smelter expansion, Harare, Zimbabwe. Air quality specialist. Zimplats, 2007
- Air Quality Impact Assessment for the proposed Majuba Combined Cycle Gas Turbine (CCGT) Power Station, Mpumalanga Province. Air quality specialist. Eskom Generation, 2007

**SPECIALIST STUDIES**

Various specialist study projects, responsible for the project management and day-to-day co-ordination of the following projects, to ensure timeous collection of information and submission of required deliverables:

- Independent Review of the Burnstone Gold Mine Environmental Impact Assessment and Environmental Management Plans, in accordance with the Equator Principles, Mpumalanga Province. Project leader. Snowden, 2008
- Visual Impact Assessment Report for Robinson Deep Landfill, Gauteng Province. Environmental scientist. Pikitup, 2006
- Identification and Compilation of Transwerk Germiston Environmental Aspects and Impacts Register, Germiston, Gauteng Province. Environmental scientist. Transwerk, 2006
- Compilation of CTMM Noise Zoning Report for Regions 1 – 8, Gauteng Province. Environmental scientist. CTMM, 2005
- Water License Applications for New Mining Operations at the Holcim South Africa Dudfield Plant, North West Province. Environmental scientist. Holcim, 2005 – 2006
- Exemption Application and Public Participation Process for the Vaal VRESAP 88 kV Distribution line and new VRESAP Substation. Environmental scientist and project leader, 2006

**PUBLIC PARTICIPATION PROCESS**

Responsible for the co-ordination of the Public Participation Process, involving the compilation of Public Participation documentation, arranging and co-ordinating public meetings, management of Interested and Affected Party (I&AP) database's and day-to-day solicitation of comments and responses to and from I&APs. Projects included:

- Public Consultation Process for the Development of the Mbombela Precinct Plans for the Mbombela Local Municipality. Public Consultation Practitioner, 2011.
- SANParks National Database for the Environmental Management Plans for selective National Parks. Public participation consultant. SANParks, 2004

**INTERNATIONAL EXPERIENCE**

Internationally has provided consulting services on the following projects:

- Environmental Management Plan for the Boteti Diamond Mine in Karowe, Botswana, Project Leader, 2012

## CURRICULUM VITAE

Rebecca Thomas

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- Various energy related projects, Gaborone, Botswana. Environmental Consultant, 2008 – 2011
- Environmental Inception Report for Dar-es-Salaam International Airport (DIA) and the Tanzanian Airport Authority (TAA). Identification of Environmental Impacts, Gap Analysis of existing infrastructure in Dar-es-Salaam and future requirements of the city, inclusive of water and sewage management facilities. Environmental consultant. TAA, 2007
- GIS Mapping and Conservation Management for a Private Game Reserve near Rabat, Morocco. Looking at wildlife management, rehabilitation and renovation of the property as well as game management. Environmental consultant. Confidential, 2007
- Presentation on South African Public-Private Partnership and Environmental Impact Assessment at the Partners for Roads International Conference on Roads and Regional Development, Prague, Czech Republic, 2007
- Three months knowledge exchange and working experience with Bohlweki Environmental Association Company, DHV, in the Netherlands from September 2007 to December 2007



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## CURRICULUM VITAE – CHRIS VAN ROOYEN

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**Name of organisation:** Chris van Rooyen Consulting  
**Profession:** Ornithological Consultant  
**Position in Firm:** Director/Co-owner  
**Date of Birth:** 30 April 1964  
**Relevant Experience:** 17 years

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### SPECIALIST FIELD

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Ornithological consultant offering specialist advice related to the impact of industrial developments on avifauna, especially in the electricity energy sector.

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### TERTIARY EDUCATION

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1988	B.A. (Law)	Rand Afrikaans University
1991	LLB	Rand Afrikaans University

I work under the supervision of and in association with Albert Froneman (SACNASP Zoological Science Registration number 400177/09) as stipulated by the Natural Scientific Professions Act 27 of 2003.

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### KEY EXPERIENCE IN ELECTRICITY INDUSTRY

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#### WIND ENERGY SITES

- St Helena Bay, Seeland, Electrawind
- Caledon, Caledon Wind
- Caledon, Langhoogte, SAGIT
- Langebaan, Langfontein, Oelsner Group
- Darling, Kerrifontein Oelsner Group
- Jeffreys Bay, Mainstream
- Ubuntu, Windcurrent
- Bana ba pifhu, Windcurrent
- Coega, Electrawind
- Swellendam, Excelsior, Biotherm
- Vredendal, Inca Energy
- Vredendal, Electrawind
- Morreesburg, Swartberg, Electrawind
- Oyster Bay, Renewable Energies South Africa
- Laingsburg, Spitskopvlakte, Biotherm
- Port Nolloth, Kannikwavlakte, Biotherm
- Vleesbaai, Vleesbaai Independent Power Producer
- Loeriesfontein, Mainstream
- Noupoort, Mainstream
- Indwe, Biotherm
- Pofadder, Mainstream
- Namies, JUWI
- De Aar, Mulilo North
- De Aar, Mulilo South

#### SOLAR ENERGY SITES:

- Bokpoort, Concentrated Solar Thermal Power (CSP)
- Solar Park, Upington
- Mainstream De Aar PV
- Droogfontein (Kimberley) PV

#### POWER LINES:

- Chobe 33kV Distribution line
- Athene - Umfolozi 400kV
- Beta-Delphi 400kV
- Cape Strengthening Scheme 765kV
- Flurian-Louis-Trichardt 132kV
- Ghanzi 132kV (Botswana)
- Ikaros 400kV
- Matimba-Witkop 400kV
- Naboomspruit 132kV
- Tabor-Flurian 132kV
- Windhoek - Walvisbaai 220 kV (Namibia)
- Witkop-Overysseel 132kV
- Breyten 88kV
- Adis-Phoebus 400kV
- Dhuva-Janus 400kV
- Perseus-Mercury 400kV
- Gravelotte 132kV
- Ikaros 400 kV
- Khanye 132kV (Botswana)
- Moropule – Thamaga 220 kV (Botswana)
- Parys 132kV
- Simplon –Everest 132kV
- Tutuka-Alpha 400kV
- Simplon-Der Brochen 132kV
- Big Tree 132kV
- Mercury-Ferrum-Garona 400kV
- Pebble Rock 132kV
- Reddersburg 132kV
- Thaba Combine 132kV
- Nkomati 132kV
- Louis Trichardt – Musina 132kV
- Endicot 44kV
- Apollo Lepini 400kV
- Tarlton-Spring Farms 132kV
- Kuschke 132kV substation
- Bendstore 66kV Substation and associated lines
- Kuiseb 400kV (Namibia)
- Gyani-Malamulele 132kV
- Watershed 132kV
- Bakone 132kV substation
- Eerstegoud 132kV LILO lines
- Kumba Iron Ore: SWEP - Relocation of Infrastructure
- Kudu Gas Power Station: Associated power lines
- Steenberg Booyseendal 132kV
- Toulon Pumps 33kV
- Thabatshipi 132kV
- Witkop-Silica 132kV
- Bakubung 132kV
- Nelsriver 132kV
- Rethabiseng 132kV
- Tiilburg 132kV
- and LILO lines
- Styltdrift 132kV
- Taunus – Diepkloof 132kV
- Bighorn NDP 132kV
- Waterkloof 88kV
- Camden – Theta 765kV
- Dhuva – Minerva 400kV Diversion
- Lesedi –Grootpan 132kV
- Waterberg NDP
- Bulgerivier – Dorset 132kV
- Bulgerivier – Toulon 132kV
- Nokeng-Fluorspar 132kV
- Mantsole 132kV
- Tshilamba 132kV
- Thabamooop - Tshebela – Nhlovuko 132kV
- Arthurseat 132kV
- Borutho 132kV MTS
- Grootboom 132kV
- DWAF Steelpoort 132kV
- Chloe – Gilead 66kV
- Pietersburg – Chloe 66kV
- Tshatane – Lesideng 132kV
- Lesego – Jane Furse 132kV
- DWAF 1 – DWAF 2 132kV
- Pitso 132kV Substation
- Lebowa – Dithabaneng – Boynton LILO 132kV

- Zeus-Perseus 765kV
- Matimba B Integration Project
- Caprivi 350kV DC (Namibia)
- Gerus-Mururani Gate 350kV DC (Namibia)
- Mmamabula 220kV (Botswana)
- Steenberg-Der Brochen 132kV
- Venetia-Paradise T 132kV
- Burgersfort 132kV
- Majuba-Umfolozi 765kV
- Delta 765kV Substation
- Braamhoek 22kV
- Steelpoort Merensky 400kV
- Mmamabula Delta 400kV
- Delta Epsilon 765kV
- Gerus-Zambezi 350kV DC Interconnector: Review of proposed avian mitigation measures for the Okavango and Kwando River crossings
- Giyani 22kV Distribution line
- Lihobong-Kao 132/11kV distribution power line, Lesotho
- 132kV Leslie – Wildebeest distribution line
- A proposed new 50 kV Spoornet feeder line between Sishen and Saldanha
- Cairns 132kv substation extension and associated power lines
- Pimlico 132kv substation extension and associated power lines
- Gyani 22kV
- Matafin 132kV
- Nkomazi\_Fig Tree 132kV
- GaKgapanne 66kV
- Knobel Gilead 132kV
- Bochum Knobel 132kV
- Madibeng 132kV
- Witbank Railway Line and associated infrastructure
- Spencer NDP phase 2 (5 lines)
- Akanani 132kV
- Hermes-Dominion Reefs 132kV
- Cape Pensinsula Strengthening Project 400kV
- Magalakwena 132kV
- Benfiosa 132kV
- Dithabaneng 132kV
- Taunus Diepkloof 132kV
- Taunus Doornkop 132kV
- Tweedracht 132kV
- Jane Furse 132kV
- Majeje Sub 132kV
- Tabor Louis Trichardt 132kV
- Riversong 88kV
- Mamatsekele 132kV
- Kabokweni 132kV
- MDPP 400kV Botswana
- Marble Hall NDP 132kV
- Bokmakiere 132kV Substation
- Thulamela 132kV
- Marang 132kV
- Thulamela 132kV
- Merensky 132kV
- Amandla – Makometsane - Moutse 132kV
- Lebathlane 132kV
- Sun City Substation and associated powerlines
- Solar Park 400kV Integration Project
- Mamatsekele 132kV
- KwaMhlanga 132kV
- Malelane – Buffelspruit 132kV
- Gutshwa 132kV
- Taung-Gold 88kV
- Bredasdorp 66kV
- Vaalkop Dam 88kV
- Freedom Park 88kV
- Winterveld 132kV
- Ohrigstad – Phiring – Lemara 132kV
- Blouwater – Uiekraal 66kV
- Houhoek 400kV substation and LILO lines
- Zandfontein – Carmona 88kV
- Bracken – Roscco 88kV
- Victor 132kV
- Gamma – Kappa 765kV
- Kappa – Omega – Aurora 765kV

#### POWER STATIONS:

- Open Cycle Gas Turbine Plants & The Associated Transmission Lines & Substation At Atlantis, Western Cape
- Kangra Power Station: Siting Report

#### OTHER PROJECTS:

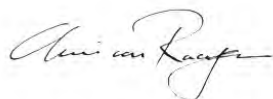
- Lizard Point Golf Estate
- Lever Creek Estates
- Leloko Lifestyle Estates
- Vaalowers Residential Development
- Clearwater Estates Grass Owl Impact Study
- Somerset Ext. Grass Owl Study
- Proposed Three Diamonds Trading Mining Project (Portion 9 and 15 of the Farm Blesbokfontein)
- N17 Section: Springs To Leandra –“Borrow Pit 12 And Access Road On (Section 9, 6 And 28 Of The Farm Winterhoek 314 Ir)
- South African Police Services Gauteng Radio Communication System: Portion 136 Of The Farm 528 Jq, Lindley.
- Report for the proposed upgrade and extension of the Zeekoegat Wastewater Treatment Works, Gauteng.
- Bird Impact Assessment for Portion 265 (a portion of Portion 163) of the farm Rietfontein 189-JR, Gauteng.
- Bird Impact Assessment Study for Portions 54 and 55 of the Farm Zwartkop 525 JQ, Gauteng.
- Bird Impact Assessment Study Portions 8 and 36 of the Farm Nooitgedacht 534 JQ, Gauteng.
- Shumba’s Rest Bird Impact Assessment Study
- Randfontein Golf Estate Bird Impact Assessment Study
- Ziikaatsnek Wildlife Estate
- Regenstein Communications Tower (Namibia)
- Input into Richards Bay Comparative Risk Assessment Study
- Maquasa West Open Cast Coal Mine
- Glen Erasmia Residential Development, Kempton Park, Gauteng
- Bird Impact Assessment Study, Weltevreden Mine, Mpumalanga
- Bird Impact Assessment Study, Olifantsvlei Cemetery, Johannesburg
- Camden Ash Disposal Facility, Mpumalanga
- Proposed Desalination Project at Mile 6 near Swakopmund, Namibia

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#### CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications and experience.

Date: 17 July 2014



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# Nicolene Venter



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<b>Name of firm</b>	<b>Zitholele Consulting</b>
<b>Profession</b>	<b>Senior Public Participation Practitioner</b>
<b>Specialisation</b>	<b>Public Participation</b>
<b>No. of years with firm</b>	<b>2 months</b>
<b>Nationality</b>	<b>South African, ID No. 600421 0065 088</b>

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**Key Experience**

Nicolene has over the past 15 years established herself as an experienced and well recognized public participation practitioner, facilitator and strategic reviewer. She has project managed several high profile public participation projects and excels in not only stakeholder engagements but with humility for street level consultation. Nicolene first formed her own consultancy business in 1997 and joined SiVEST in October 2007, and returned to her own consultancy business in October 2011. She lead public participation and stakeholder engagement projects with insightful strategic thinking to ensure the delivery of highly professional and a target orientated public participation process to her clients as the project dictates. She also has sound knowledge of the Equator Principles especially in terms of the Public Participation Process required for projects that are funded internationally. Nicolene's skills base also includes the facilitation of workshops, public and focus group meetings. As the Public Participation Practitioner, her proven leadership skills ensures the managing, development and motivation of the public participation team to achieve project objectives and to maintain high quality standards.

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## Professional Registrations

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<b>Education</b>	International Association for Public Practitioners (IAP2) (Modules 1 and 2)	IAPP	2009
	Diploma in Public Relations	Public Relations Institute of South Africa	1989
	Higher Secretarial Diploma	Pretoria Technikon	1979

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## Employment Record

2013 - Present	Zitholele Consulting	Public Participation
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## Project Experience

### Mining Projects

<b>Proposed AK6 Diamond Mine</b>	<b>Boteti, Botswana</b>
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Drafting of the Community Consultation Plan for inclusion in the Closure Plan for the updated Environmental Management Plan

## **Power Plants**

### **Zimbabwe Ethenol Plant**

**Zimbabwe**

Consultation process undertaken for the proposed construction of an ethanol plant in Chisumbanje, Middle Sabie, Zimbabwe in terms of the Zimbabwe's Environmental Management Agency (EMA). Not only did consultation take place with Government Officials, but an intensive consultation process has taken place with the local community.

### **EIA: Hendrina Ash Dam Expansion**

**Mpumalanga Province, South Africa**

Expansion of Eskom's Hendrina Power Station's Ash Dam Facilities at Pullenshope, Mpumalanga Province

### **EIA: Wind farms and/or Solar Energy Facilities**

**Northern Cape Province, South Africa**

Proposed construction of wind farms and/or solar energy facilities as proposed by Mainstream Renewable Power South Africa, Northern Cape Province.

### **Basic Environmental Assessment: Grootvlei Power Station**

**Mpumalanga Province, South Africa**

Proposed installation of an additional 500M3 bulk storage fuel tank at Eskom's Grootvlei power Station, Mpumalanga Province

### **EIA: Solar Energy Facility**

**Kimberly, South Africa**

(Droogfontein, Kimberley; Kaalplats, Loeriesfontein; Paarde Valley, De Aar). The proposed construction of Concentrating Solar Plants (CSP) and Concentrating/Photovoltaic (CPV/PV) Plants as proposed by Mainstream Renewable Power South Africa in the Northern Cape Province.

## **Linear Infrastructure**

### **EIA: Aggeneis-Oranjemond**

**Northern Cape Province, South Africa**

Proposed construction of a new 400kV Eskom Transmission Power Line between Aggeneys and Oranjemond, and the expansion of the Aggeneis and Oranjemond Transmission Substations, Northern Cape Province

### **Impact Phase of EIA: Invubu-Theta**

**KwaZulu Natal, South Africa**

Proposed construction of a double circuit 400kV Eskom Transmission Power Line between Richards Bay and Empangeni, KwaZulu-Natal Province

### **Basic Environmental Assessment: Westrand**

**Gauteng Province, South Africa**

Proposed construction of a 400kV Eskom Transmission Power Line between Eskom's existing Westrand and Hera Substations, Gauteng Province.

### **EIA: Mookodi Integration Project**

**North-West Province, South Africa**

Proposed improvement of Eskom's electricity supply network around the Vryburg and Stella, and to supply the proposed Kalplats Mine with electricity, North-West Province.

### **EIA: Transnet Coallink**

**KwaZulu Natal & Mpumalanga, South Africa**

Transnet's coallink upgrade project from Ermelo to Richard's Bay - Class Application for a number of Basic Assessments and Environmental Impact Assessments (5 Applications), Mpumalanga and KwaZulu-Natal Provinces

### **EIA: Thyspunt Transmission lines Integration Project**

**Eastern Cape Province, South Africa**

Proposed construction of 5 x 400kV Eskom Transmission power lines between Thyspunt (near Oyster Bay) to Port Elizabeth – 180km in length (Eskom's existing Grassridge & Dedisa Transmission Substations), Port Elizabeth, Eastern Cape Province

### **EIA: Delarey-Kopela-Phahameng**

**South Africa**

Proposed construction of an Eskom Distribution power line from Delareyville past Kopela to Madibogo.

### **Basic Environmental Assessment: Malelane Substation**

**Mpumalanga Province, South Africa**

Proposed Construction of a New Malelane Substation and the Proposed Construction of a New Komatipoort-Marathon 275kV Eskom Transmission Power Line Turn-In of approximately 1.5km, Malelane, Mpumalanga Province

### **Other**

#### **Miwani Sugar Mill**

#### **Kenya**

Consultation process undertaken, under the National Environment Management Authority (NEMA) of Kenya, with the assistance of local specialists (Kenya Marine and Fisheries Research Institute) for the proposed construction of a sugar mill in Miwani, Nyanza Province in terms of Kenya's.

#### **EIA: Middelburg Water Treatment Plant**

#### **Mpumalanga Province, South Africa**

Water reclamation scheme for BHP Billiton Energy Coal South Africa (BECSA) in the Witbank / Middelburg area, Mpumalanga Province

Strategic Management and Review of Stakeholder Engagement Process were also conducted for a number of EIAs / BAs and the completion of Stakeholder Engagement Process between 1997 to September 2007 is available on request

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#### ***Facilitation responsibility only:***

- Environmental Management Plan for Prospecting Right Application Process (Client: Oresund Environmental Solutions): August 2010 and September 2010
- Ariadne-Eros 400kV/132kV Multi-Circuit Transmission Power Line: July 2009 and March 2010 (Client: Acer Africa)
- Middelburg SmancorCR Chemical Plant (Client: Environmental Science Associates) – Public Meeting: October 2007
- Majuba-Venus 765kV Transmission Power Lines (Client: Acer Africa) – Public Meetings: July 2008 and March 2010

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#### **Papers, publications and presentations**

None





## **Appendix 3: Authority Consultation**





Department of Environmental Affairs  
Environment House  
473 Steve Biko  
Arcadia  
PRETORIA  
0083

DEA Reference:

Our reference: 13303 – Sendawo Substation and Power Line

Date: 11 January 2016

**ATTENTION: THE DIRECTOR FOR EIA**

Dear Sir/Madam

**APPLICATION FOR ENVIRONMENTAL AUTHORISATION: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED CONSTRUCTION OF THE SENDAWO 400KV SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

Please find attached herewith an Application Form for Environmental Authorisation for the above-mentioned proposed project.

Your review and acceptance of the attached application form will be appreciated.

Please do not hesitate to contact us should you have any queries in this regard.

**Lynsey Rimbault**

PO BOX 2921, Rivonia, 2128  
Tel – (011) 798 0600  
Fax – (011) 803 7272  
Email – [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

Yours sincerely,



Andrea Gibb  
Environmental Consultant  
SiVEST Environmental Division

Encl: 1 x Application Form for Environmental Authorisation (Including Appendices)

Department of Environmental Affairs  
Environment House  
473 Steve Biko  
Arcadia  
PRETORIA  
0083

DEA Reference:

Our reference: 13303 – Sendawo Sub and Power Line

Date: 11 January 2016

**ATTENTION: THE DIRECTOR FOR EIA**

Dear Sir/Madam

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED DEVELOPMENT OF THE SUBSTATION AND 400kV POWER LINE ASSOCIATED WITH THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES NEAR VRYBURG, NORTH WEST PROVINCE**

SIVEST is in the process of undertaking the Environmental Impact Assessment (EIA) for the proposed substation, namely Sendawo substation, and the 400kV power line required in order to connect the three (3) proposed Sendawo solar photovoltaic (PV) energy facilities to the existing Mookodi Main Transmission Substation (MTS) near Vryburg, North West Province.

Please find herewith two (2) electronic copies (on CD) and two (2) hard copies of the Draft Scoping Report (DSR) for the above mentioned proposed project.

Please do not hesitate to contact us should you have any queries in this regard.

**Lynsey Rimbault**

PO BOX 2921, Rivonia, 2128  
Tel – (011) 798 0600  
Fax – (011) 803 7272  
Email – [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

Yours sincerely,



Andrea Gibb  
Environmental Consultant  
SiVEST Environmental Division

Encl: 2 x Hard copies of the DSR (Incl. Appendices)  
2 x Electronic copies (on CD) of the DSR (Incl. Appendices)



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

Private Bag X 447 · PRETORIA · 0001 · Environment House · 473 Steve Biko Road, Arcadia · PRETORIA

DEA Reference: 14/12/16/3/3/2/894

Enquiries: Salome Mambane

Tel: 012 399 9385 E-mail: [SMambane@environment.gov.za](mailto:SMambane@environment.gov.za)

Rebecca Thomas  
SiVEST SA (Pty) Ltd  
P.O Box 2921  
RIVONIA  
2128

Fax: 011 803 7272  
Tel: 011 798 0600  
Email: [rebeccat@sivest.co.za](mailto:rebeccat@sivest.co.za)

### PER EMAIL / MAIL

Dear Sir/Madam

**ACKNOWLEDGEMENT OF RECEIPT OF A NEW APPLICATION FOR ENVIRONMENTAL AUTHORISATION (SCOPING PROCESS) AND A DRAFT SCOPING REPORT FOR THE PROPOSED CONSTRUCTION OF THE SENDAWO 400KV SUBSTATION AND 400KV POER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

The Department confirms having received the application for environmental authorisation and the Draft Scoping report for the abovementioned project on 13 January 2016. You have submitted these documents to comply with the Environmental Impact Assessment Regulations, 2014.

**Further note that in terms of regulation 45 of the EIA Regulations, 2014 this application will lapse if the applicant fails to meet any of the time-frames prescribed in terms of these Regulations, unless an extension has been granted in terms of regulation 3(7).**

You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.

Yours sincerely

**Mr Sabelo Malaza**

**Chief Director: Integrated Environmental Authorisations**

**Department of Environmental Affairs**

**Letter signed by: Ms Senisha Soobramany**

**Designation: Control Environmental Officer (Grade A): Integrated Environmental Authorisations**

**Date: 18 January**

cc:	Jasandra Nyker	Bio Therm Energy (Pty) Ltd	Email: <a href="mailto:eiaadmin@biothermenergy.co.m">eiaadmin@biothermenergy.co.m</a>
	Bonolo Mohlakoana	North West Department of Rural, Environmental and Agricultural Development	Email: <a href="mailto:bmohlakoana@nwpa.gov.za">bmohlakoana@nwpa.gov.za</a>
	Nombulelo Mboyisi	Naledi Local Municipality	Email: <a href="mailto:imboyisin@naledi.local.gov.za">imboyisin@naledi.local.gov.za</a>



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

Private Bag X 447 · PRETORIA · 0001 · Environment House · 473 Steve Biko Road, Arcadia, · PRETORIA  
Tel (+ 27 12) 399 9372

**DEA Reference:** 14/12/16/3/3/2/894

**Enquiries:** Mr Herman Alberts

**Telephone:** (012) 399 9371 **E-mail:** HAlberts@henvironment.gov.za

Ms Rebecca Thomas  
SiVEST South Africa (Pty) Ltd  
PO Box 2921  
**RIVONIA**  
2128

Telephone Number: (011) 798 0600  
Email Address: rebecca@sivest.co.za

### **PER E-MAIL / MAIL**

Dear Ms Thomas

### **COMMENTS ON THE DRAFT SCOPING REPORT FOR THE PROPOSED CONSTRUCTION OF THE SENDAWO 400KV SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

The draft Scoping Report (SR) dated January 2016 and received by this Department on 13 January 2016, and the acknowledgement letter of the SR issued by this Department on 18 January 2016 refer.


This Department has the following comments on the abovementioned application:

- i. Please ensure that all relevant listed activities are applied for, are specific and that it can be linked to the development activity or infrastructure as described in the project description.
- ii. If the activities applied for in the application form differ from those mentioned in the final SR, an amended application form must be submitted. Please note that the Department's application form template has been amended and can be downloaded from the following link <https://www.environment.gov.za/documents/forms>
- iii. Please ensure that all issues raised and comments received during the circulation of the SR from registered I&APs and organs of state which have jurisdiction (including this Department's Biodiversity Section) in respect of the proposed activity are adequately addressed in the final SR. Proof of correspondence with the various stakeholders must be included in the final SR. Should you be unable to obtain comments, proof should be submitted to the Department of the attempts that were made to obtain comments. The Public Participation Process must be conducted in terms of Regulation 39, 40 41, 42, 43 & 44 of the EIA Regulations 2014.
- iv. Scoping specialist studies, if applicable, must be submitted to the Department with the final SR.
- v. This Department requests the EAP to familiarise themselves with the requirements of Appendix 2 of GNR 982 of the EIA Regulations, 2014 and ensure that the final SR submitted to this Department for consideration meets the requirements in terms of identifying, assessing and providing mitigation measures of the impacts on the alternative and preferred sites.
- vi. Please provide a description of any identified alternatives for the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity as per Appendix 2 of GN R.982 of 2014. Alternatively, you should submit written proof of an investigation and motivation if no reasonable or feasible alternatives exist in terms of Appendix 2.
- vii. In accordance with Appendix 2 (2) (a) of the EIA Regulations 2014, the details of—

- (i) the EAP who prepared the report; and
  - (ii) the expertise of the EAP to carry out Scoping and Environmental Impact assessment procedures;
- must be submitted to the Department.
- viii. You are further reminded that the final SR to be submitted to this Department must comply with all the requirements in terms of the scope of assessment and content of Scoping reports in accordance with Appendix 2 and Regulation 21(1) of the EIA Regulations, 2014.
  - ix. Further note that in terms of Regulation 45 of the EIA Regulations 2014, this application will lapse if the applicant fails to meet any of the timeframes prescribed in terms of the these Regulations, unless an extension has been granted in terms of Regulation 3(7).

You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.

Yours faithfully



**Mr Sabelo Malaza**  
**Chief Director: Integrated Environmental Authorisations**  
**Department of Environmental Affairs**  
**Signed by: Mr Coenrad Agenbach**  
**Designation: Deputy Director: Strategic Infrastructure Developments**  
**Date: 08/02/2016**

cc:	Jasandra Nyker	BioTherm Energy (Pty) Ltd	Email: eiaadmin@biothermenergy.com
	Bonolo Mohlakoana	NW Depart of Rural, Environmental and Agricultural Development	Email: bmohlakoana@nwpg.gov.za
	Nombulelo Mboyisi	Naledi Local Municipality	Email: imboyisin@naledilocal.gov.za

Department of Environmental Affairs  
Environment House  
473 Steve Biko  
Arcadia  
PRETORIA  
0083

DEA Reference: 14/12/16/3/3/2/894  
Our reference: 13303 – Sendawo Sub and Power Line  
Date: 19 February 2016

**ATTENTION: MR HERMAN ALBERTS**

Dear Mr Alberts

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED DEVELOPMENT OF THE SUBSTATION AND 400kV POWER LINE ASSOCIATED WITH THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES NEAR VRYBURG, NORTH WEST PROVINCE**

- **DEA Ref No: 14/12/16/3/3/2/894**

Please find herewith two (2) electronic copies (on CD) and two (2) hard copies of the Final Scoping Report (FSR) for the proposed substation, namely Sendawo substation, and the 400kV power line required in order to connect the three (3) proposed Sendawo solar photovoltaic (PV) energy facilities to the existing Mookodi Main Transmission Substation (MTS) near Vryburg, North West Province.

Please do not hesitate to contact us should you have any queries in this regard.

**Lynsey Rimbault**

PO BOX 2921, Rivonia, 2128  
Tel – (011) 798 0600  
Fax – (011) 803 7272  
Email – [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

Yours sincerely,

Rebecca Thomas  
Environmental Consultant  
SiVEST Environmental Division

Encl: 2 x Hard copies of the FSR (Incl. Appendices)  
2 x Electronic copies (on CD) of the FSR (Incl. Appendices)



## environmental affairs

Department:  
Environmental Affairs  
**REPUBLIC OF SOUTH AFRICA**

Private Bag X 447 · PRETORIA · 0001 · Environmental House · 473 Steve Biko Road · PRETORIA  
Tel (+ 27 12) 399 9972

**DEA Reference:** 14/12/16/3/3/2/894

**Enquiries:** Mr Herman Alberts

**Tel:** 012 399 9371 **E-mails:** [HALberts@environment.gov.za](mailto:HALberts@environment.gov.za)

Rebecca Thomas  
SiVEST Environmental Division  
P. O Box 2921  
**RIVONIA**  
2128

**Tel:** 011 798 0600

**Email:** [info@sivest.co.za](mailto:info@sivest.co.za)

**PER E-MAIL / MAIL**

Dear Madam/Sir

**ACKNOWLEDGEMENT OF RECEIPT OF THE FINAL SCOPING REPORT FOR THE PROPOSED DEVELOPMENT OF THE SUBSTATION AND 400KV POWER LINE ASSOCIATED WITH THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES NEAR VRYBURG, NORTH WEST PROVINCE**

The Department confirms receipt of the final Scoping Report for the above-mentioned project on 19 February 2016.

You are hereby reminded that the activity may not commence prior to an environmental authorisation being granted by the Department.

Yours sincerely

**Mr Sabelo Malaza**

**Chief Director: Integrated Environmental Authorisations**

**Department of Environmental Affairs**

**Letter signed by: Ms Tiyani Baloyi**

**Designation: Environmental Officer Specialised: Coordination, Strategic Planning and Support**

**Date:** 26/02/2016



## **environmental affairs**

Department:  
Environmental Affairs  
**REPUBLIC OF SOUTH AFRICA**

Private Bag X 447 · PRETORIA · 0001 · Environment House · 473 Steve Biko Road · Arcadia · PRETORIA  
Tel (+ 27 12) 399 9372

**DEA Reference:** 14/12/16/3/3/2/894

**Enquiries:** Herman Alberts

**Telephone:** (012) 399 9371 **E-mail:** HAlberts@environment.gov.za

Ms Rebecca Thomas  
SiVEST Environmental (Pty) Ltd  
PO Box 2921  
**RIVONIA**  
2128

Telephone Number: (011) 798 0600  
Email Address: rebeccat@sivest.co.za

### **PER EMAIL / MAIL**

Dear Ms Thomas

### **ACCEPTANCE OF THE SCOPING REPORT FOR THE PROPOSED CONSTRUCTION OF THE SENDAWO 400KV SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

The Scoping Report (SR) and Plan of Study for Environmental Impact Assessment (PoSEIA) dated February 2016 and received by this Department on 19 February 2016 refer.

This Department has evaluated the submitted SR and the PoSEIA dated February 2016 and is satisfied that the documents comply with the minimum requirements of the Environmental Impact Assessment (EIA) Regulations, 2014. The SR is hereby accepted by the Department in terms of Regulation 22(a) of the EIA Regulations, 2014.

You may proceed with the EIA process in accordance with the tasks contemplated in the PoSEIA and the requirements of the EIA Regulations, 2014.

All comments and recommendations made by all stakeholders and Interested and Affected Parties (I&APs) in the draft SR and submitted as part of the final SR must be taken into consideration when preparing an Environmental Impact Assessment report (EIAR) in respect of the proposed development. Please ensure that all mitigation measures and recommendations in the specialist studies are addressed and included in the final EIAR and Environmental Management Programme (EMPr).

Please ensure that comments from all relevant stakeholders are submitted to the Department with the final EIAR. This includes but is not limited to the North West Department of Economic Development, Environment, Conservation and Tourism, the Department of Agriculture, Forestry and Fisheries (DAFF), the provincial Department of Agriculture, the South African Civil Aviation Authority (SACAA), the Department of Transport, the Local Municipality, the District Municipality, the Department of Water and Sanitation (DWS), the South African National Roads Agency Limited (SANRAL), the South African Heritage Resources Agency (SAHRA), the Endangered Wildlife Trust (EWT), BirdLife SA, the Department of Mineral Resources, the Department of Rural Development and Land Reform, and the Department of Environmental Affairs: Directorate Biodiversity and Conservation.



Please ensure that the EIAr and EMPr comply with Appendix 3 and Appendix 4 of Regulation 2014, before submission to the Department. You are also required to address all issues raised by organs of state and I&APs prior to the submission of the EIAr to the Department.

Proof of correspondence with the various stakeholders must be included in the EIAr. Should you be unable to obtain comments, proof should be submitted to the Department of the attempts that were made to obtain comments.

The EAP must, in order to give effect to Regulation 8, give registered I&APs access to, and an opportunity to comment on the report in writing within 30 days before submitting the final EIAr to the Department.

Please ensure that the final EIAr includes at least one legible A3 regional map of the area and the site layout map to illustrate the powerline and associated infrastructure. The maps must be of acceptable quality and as a minimum, have the following attributes:

- Maps are relatable to one another;
- Cardinal points;
- Co-ordinates;
- Legible legends;
- Indicate alternatives;
- Latest land cover;
- Vegetation types of the study area; and,
- A3 size locality map

In addition, the following information is required for the EIAr:

- i. This Department advises that the applied listed activities and their relevant issues be addressed and assessed in the EIAr.

GN R.983: Activity 19:

*"The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from-  
(i) a watercourse"*

With regards to infilling and excavation of watercourses for the construction of the Solar Facility, this Department requires the applicant to provide an indication of the preferred and alternate locations from which the material used for infilling will be sourced and where excavated material will be stored and/or disposed of. In addition, the impacts associated with this activity must be adequately assessed in the EIAr.

GN R. 983: Activity 12:

*"The development of:*

- x) buildings exceeding 100 square metres in size;*
- xii) infrastructure or structures with a physical footprint of 100 square metres or more;*  
*where such development occurs-*
  - (a) within a watercourse;*
  - (b) in front of a development setback; or*
  - (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse"*

The Environmental Assessment Practitioner must apply for the specific aspect of the activity, i.e. part (a), part (b) or part (c) as all of these parts of the activity cannot be authorised.

GN R. 983: Activity 56:

*"The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre  
(i) where the existing reserve is wider than 13,5 meters; or  
(ii) where no reserve exists, where the existing road is wider than 8 metres"*

The Environmental Assessment Practitioner must apply for the specific aspect of the activity, i.e. either part (i) or part (ii) as both of these parts of the activity cannot be authorised.

GN R. 985: Activity 14 (x) and (xii):

*"The development of-*

*(x) buildings exceeding 10 square metres in size;*

*(xii) infrastructure or structures with a physical footprint of 10 square metres or more;*

*where such development occurs-*

*(a) within a watercourse;*

*(b) in front of a development setback; or*

*(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse*

The Environmental Assessment Practitioner must apply for the specific aspect of the activity, i.e. part (a), part (b) or part (c) as all of these parts of the activity cannot be authorised.

- ii. Since there is a need to amend the application form, please note that the Department's application form template has been amended and can be downloaded from the following link <https://www.environment.gov.za/documents/forms>.
- iii. Please ensure that all relevant listing notice activities applied for, are specific and that it can be linked to the development activity or infrastructure as described in the project description.
- iv. The EIA must provide an assessment of the impacts and mitigation measures for each of the listed activities applied for.
- v. You are further reminded to provide a description of any identified alternatives for the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and on the community that may be affected by the activity. Alternatively, submit written proof of an investigation and motivation if no reasonable or feasible alternatives exist.
- vi. The EIA must provide detailed need and desirability as to why there is a need for the development and why the specific location is desirable.
- vii. The EIA must provide an indication of the internal access roads and the impacts associated with them must be adequately assessed in the EIA and EMP.
- viii. The inclusion of all received comments and response thereto in the comments and response report.
- ix. Information on services required on the site, e.g. sewage, refuse removal, water and electricity. Who will supply these services and has an agreement and confirmation of capacity been obtained? Proof of these agreements must be provided.
- x. The EIA must provide a layout which depicts the entire facility, i.e. the solar and grid connection infrastructure.
- xi. The assessment of impacts and the Environmental Impact Assessment process; and, the requirements of the Public Participation Process (PPP) must be in accordance with Regulation 39 to 44 of the GN R982 of EIA Regulations 2014.
- xii. A copy of the final site layout map. All available biodiversity information must be used in the finalisation of the layout map. Existing infrastructure must be used as far as possible e.g. roads. The layout map must indicate, but is not limited to, the following:
  - Power line position;
  - Construction period laydown footprint;

- Access roads indicating width (construction period width and operation period width) and with numbered sections between the other site elements which they serve (to make commenting on sections possible);
  - Wetlands, drainage lines, rivers, stream and water crossing of roads and cables indicating the type of bridging structures that will be used;
  - The location of sensitive environmental features on site e.g. CBAs, heritage sites, wetlands, drainage lines etc. that will be affected by the facility and its associated infrastructure;
  - Cut and fill areas along roads and at sub-station/transformer sites indicating the expected volume of each cut and fill;
  - Borrow pits;
  - Spoil heaps (temporary for topsoil and subsoil and permanently for excess material);
  - All existing infrastructure on the site, especially roads;
  - All "no-go" areas
- xiii. An environmental sensitivity map indicating environmental sensitive areas and features identified during the EIA process.
- xiv. A map combining the final layout map superimposed (overlain) on the environmental sensitivity map.

The EIA must include a **cumulative assessment** since the development forms part of the bigger Sendawo Solar Energy Facility proposed in the region. The specialist studies e.g. biodiversity, visual, noise etc. must also assess the facility in terms of potential cumulative impacts.

Please ensure that all the relevant Listing Notice activities are applied for, that the Listing Notice activities applied for are specific and that they can be linked to the development activity or infrastructure in the project description.

You are hereby reminded that should the EIA fail to comply with the requirements of this acceptance letter, the project will be **refused** in accordance with Regulation 24(1)(b) of the EIA Regulations, 2014.

The applicant is hereby reminded to comply with the requirements of Regulation 45 with regard to the time period allowed for complying with the requirements of the Regulations, and Regulations 43 and 44 with regard to the allowance of a comment period for interested and affected parties on all reports submitted to the competent authority for decision-making. The reports referred to are listed in Regulation 43(1).


In addition to the above, the Department may undertake a site inspection prior to or upon receipt of the final EIA.

Furthermore, it must be reiterated that, should an application for Environmental Authorisation be subject to the provisions of Chapter II, Section 38 of the National Heritage Resources Act, Act 25 of 1999, then this Department will not be able to make nor issue a decision in terms of your application for Environmental Authorisation pending a letter from the pertinent heritage authority categorically stating that the application fulfils the requirements of the relevant heritage resources authority as described in Chapter II, Section 38(8) of the National Heritage Resources Act, Act 25 of 1999. Comments from SAHRA and/or the provincial department of heritage must be provided in the EIA.

You are requested to submit two (2) electronic copies (CD/DVD) and two (2) hard copies of the EIA to the Department as per Regulation 23(1) of the EIA Regulations, 2014.

You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, which stipulates that no activity may commence prior to an Environmental Authorisation being granted by the Department.

Yours faithfully



**Mr Sabelo Malaza**

**Chief Director: Integrated Environmental Authorisations**

**Department of Environmental Affairs**

**Letter Signed by: Mr Coenrad Agenbach**

**Designation: Deputy Director: Strategic Infrastructure Developments**

**Date:** 01/04/2016

cc:	Jasandra Nyker	BioTherm Energy (Pty) Ltd	Email: eiaadmin@biothermenergy.com
	Bonolo Mohlakoana	North West DREAD	Email: bmohlakoana@nwpg.gov.za
	Nombulelo Mboyisi	Naledi Local Municipality	Email: imboyisin@naledilocal.gov.za



**Appendix 4:  
Declarations of Interest and the EAP  
Affirmation**





## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

File Reference Number:	(For official use only) To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

**Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.**

Specialist:	ARC-Institute for Soil, Climate and Water		
Contact person:	D G Paterson		
Postal address:	Private Bag X79, Pretoria		
Postal code:	0001	Cell:	083 556 2458
Telephone:	012 310 2601	Fax:	012 323 1157
E-mail:	garry@arc.agric.za		
Professional affiliation(s) (if any)	Soil Science Society of SA, SA Council for Natural Scientific Professions, SA Soil Surveyors Organisation		
Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a>		

4.2 The specialist appointed in terms of the Regulations\_

I, **D G Paterson**, declare that -- General declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



---

Signature of the specialist:

**ARC-Institute for Soil, Climate and Water**

---

Name of company (if applicable):

**4<sup>th</sup> January 2016**

---

Date:





## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

File Reference Number:	(For official use only) To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.

Specialist:	Chris van Rooyen Consulting		
Contact person:	Chris van Rooyen		
Postal address:	30 Roosevelt Street, Robindale, Randburg		
Postal code:	2194	Cell:	0824549570
Telephone:	0824549570	Fax:	
E-mail:	Vanrooyen.chris@gmail.co		
Professional affiliation(s) (if any)	-		

Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a>		

4.2 The specialist appointed in terms of the Regulations\_

I, Chris van Rooyen , declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

---



---

Signature of the specialist:

Chris van Rooyen Consulting

Name of company (if applicable):

---

Date: 7 January 2016



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.

Specialist:	David Hoare Consulting cc		
Contact person:	David Hoare		
Postal address:	Postnet Suite 116, P.B. X025, Lynnwood Ridge		
Postal code:	0040	Cell:	083 284 5191
Telephone:	012 804 2281	Fax:	086 550 2053
E-mail:	dhoare@lantic.net		
Professional affiliation(s) (if any)	SACNASP (A. Sci. Nat.)		
Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	andreag@sivest.co.za		

4.2 The specialist appointed in terms of the Regulations\_

I, David Hoare, declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;


I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

David Hoare Consulting cc

Name of company (if applicable):

25 January 2016

Date:

Your reference: 14/12/16/3/3/2/894

Our reference: 13303 - Sendawo

Date: 31 March 2016

**AFFIRMATION BY ENVIRONMENTAL ASSESSMENT PRACTITIONER IN TERMS OF APPENDIX 2 AND 3 OF THE EIA REGULATIONS, 2014**

**PROJECT TITLE**

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province

Environmental Assessment  
Practitioner (EAP):  
Contact person:  
Postal address:  
Postal code:  
Telephone:  
E-mail:

SiVEST SA (Pty) Ltd		
Rebecca Thomas		
P O Box 2921, Rivonia, South Africa		
2128	Cell:	082 302 9010
011 798 0634	Fax:	011 803 7272
rebeccat@sivest.co.za		

I, \_\_\_\_\_ Rebecca Thomas \_\_\_\_\_, the appointed EAP confirm through this affirmation (as required in terms of Appendix 2 subsection (2) (j) and (k) and Appendix 3 subsection (3) (s) of GN982) that –

- i) To the best of my knowledge the information provided in this report is factually correct;
- ii) All comments and inputs received from stakeholders / interested and affected parties, prior to submission of the report, have been included as part of the report, and addressed where necessary;
- iii) All relevant inputs and recommendations from the specialist reports have been included in the report;
- iv) To the best of my knowledge all relevant project information which has been provided to stakeholders and interested and affected parties is correct, and is included in the report;
- v) All responses provided to comments received from stakeholders and interested and affected parties are the unbiased opinion of the EAP and are based on factually correct information;
- vi) The level of agreement between the EAP and the interested and affected parties on the plan of study for the undertaking of the environmental impact assessment has been agreed upon.



Signature of the environmental assessment practitioner:

SiVEST SA (Pty) Ltd

Name of company:

31 March 2016

Date:



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF EAP AND DECLARATION OF INTEREST

File Reference Number:	(For official use only)
	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province

Environmental Assessment Practitioner (EAP):	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreaq@sivest.co.za">andreaq@sivest.co.za</a>		
Professional affiliation(s) (if any)			

Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreaq@sivest.co.za">andreaq@sivest.co.za</a>		

## 4.2 The Environmental Assessment Practitioner

I, Andrea Gibb , declare that –

### General declaration:

I act as the independent environmental practitioner in this application;  
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;  
I declare that there are no circumstances that may compromise my objectivity in performing such work;  
I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;  
I will comply with the Act, Regulations and all other applicable legislation;  
I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application;  
I have no, and will not engage in, conflicting interests in the undertaking of the activity;  
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;  
I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;  
I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;  
I will keep a register of all interested and affected parties that participated in a public participation process;  
I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;  
all the particulars furnished by me in this form are true and correct;  
will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and  
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

**Disclosure of Vested Interest (delete whichever is not applicable)**

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;

~~— I have a vested interest in the proposed activity proceeding, such vested interest being:~~

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Signature of the environmental assessment practitioner:

SiVEST SA (Pty) Ltd

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Name of company:

21 December 2015

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Date:





## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF EAP AND DECLARATION OF INTEREST

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File Reference Number:	To be confirmed.
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Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province

Environmental Assessment Practitioner (EAP):	SiVEST SA (Pty) Ltd		
Contact person:	Stephan Jacobs		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 737 2114
Telephone:	011 798 0677	Fax:	011 803 7272
E-mail:	stephanj@sivest.co.za		
Professional affiliation(s) (if any)			

Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Stephan Jacobs		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 737 2114
Telephone:	011 798 0677	Fax:	011 803 7272
E-mail:	stephanj@sivest.co.za		

#### 4.2 The Environmental Assessment Practitioner

I, Stephan Jacobs , declare that –

##### General declaration:

I act as the independent environmental practitioner in this application;  
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;  
I declare that there are no circumstances that may compromise my objectivity in performing such work;  
I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;  
I will comply with the Act, Regulations and all other applicable legislation;  
I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application;  
I have no, and will not engage in, conflicting interests in the undertaking of the activity;  
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;  
I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;  
I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;  
I will keep a register of all interested and affected parties that participated in a public participation process;  
I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;  
all the particulars furnished by me in this form are true and correct;  
will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and  
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

**Disclosure of Vested Interest (delete whichever is not applicable)**

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;

~~I have a vested interest in the proposed activity proceeding, such vested interest being:~~

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Signature of the environmental assessment practitioner:

SIVEST SA (Pty) Ltd

Name of company:

18 February 2016

Date:





## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF EAP AND DECLARATION OF INTEREST

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File Reference Number:	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.

Environmental Assessment Practitioner (EAP):	SIVEST SA (Pty) Ltd		
Contact person:	Lynsey Rimbault		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	082 669 9558
Telephone:	011 798 0631	Fax:	011 803 7272
E-mail:	lynseyr@sivest.co.za		
Professional affiliation(s) (if any)			
Project Consultant:	SIVEST SA (Pty) Ltd		
Contact person:	Lynsey Rimbault		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	082 669 9558
Telephone:	011 798 0631	Fax:	011 803 7272
E-mail:	lynseyr@sivest.co.za		

#### 4.2 The Environmental Assessment Practitioner

I, Lynsey Rimbault , declare that –

##### General declaration:

I act as the independent environmental practitioner in this application;  
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;  
I declare that there are no circumstances that may compromise my objectivity in performing such work;  
I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;  
I will comply with the Act, Regulations and all other applicable legislation;  
I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application;  
I have no, and will not engage in, conflicting interests in the undertaking of the activity;  
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;  
I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;  
I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;  
I will keep a register of all interested and affected parties that participated in a public participation process;  
I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;  
all the particulars furnished by me in this form are true and correct;  
will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and  
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

**Disclosure of Vested Interest (delete whichever is not applicable)**

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;

~~I have a vested interest in the proposed activity proceeding, such vested interest being:~~

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Signature of the environmental assessment practitioner:

SIVEST SA (Pty) Ltd

Name of company:

18 February 2016

Date:







## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF EAP AND DECLARATION OF INTEREST

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Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.

Environmental Assessment Practitioner (EAP):	SIVEST SA (Pty) Ltd		
Contact person:	Rebecca Thomas		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	082 302 9010
Telephone:	011 798 0634	Fax:	011 803 7272
E-mail:	rebeccat@sivest.co.za		
Professional affiliation(s) (if any)			
Project Consultant:	SIVEST SA (Pty) Ltd		
Contact person:	Rebecca Thomas		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	082 302 9010
Telephone:	011 798 0634	Fax:	011 803 7272
E-mail:	rebeccat@sivest.co.za		

#### 4.2 The Environmental Assessment Practitioner

I, ~~Rebecca Thomas~~ \_\_\_\_\_, declare that –

General declaration:

I act as the independent environmental practitioner in this application;  
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;  
I declare that there are no circumstances that may compromise my objectivity in performing such work;  
I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;  
I will comply with the Act, Regulations and all other applicable legislation;  
I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application;  
I have no, and will not engage in, conflicting interests in the undertaking of the activity;  
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;  
I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;  
I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;  
I will keep a register of all interested and affected parties that participated in a public participation process;  
I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;  
all the particulars furnished by me in this form are true and correct;  
will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and  
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

**Disclosure of Vested Interest (delete whichever is not applicable)**

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;

~~I have a vested interest in the proposed activity proceeding, such vested interest being:~~

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Signature of the environmental assessment practitioner.

SIVEST SA (Pty) Ltd

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Name of company:

18 February 2016

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Date:





## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.

Specialist:	PGS Heritage (Pty) Ltd		
Contact person:	Jessica Angel		
Postal address:	PO Box 32542, Totiusdal		
Postal code:	0134	Cell:	
Telephone:	0123325305	Fax:	
E-mail:	Jessica@pgsheritage.co.za		
Professional affiliation(s) (if any)	ASAPA		
Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a>		

4.2 The specialist appointed in terms of the Regulations\_

J Angel

I, , declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



Signature of the specialist:

PGS Heritage (Pty) Ltd

Name of company (if applicable):

3 June 2016

Date:



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.

Specialist:	PGS Heritage (Pty) Ltd		
Contact person:	Wouter Fourie		
Postal address:	PO Box 32542, Totiusdal		
Postal code:	0134	Cell:	0828513575
Telephone:	012332 5395	Fax:	0866758077
E-mail:	wouter@pgsheritage.co.za		
Professional affiliation(s) (if any)	Association of Southern African Professional Archaeologists (ASAPA). Association of Professional Heritage Practitioners (APHP)		
Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a>		

4.2 The specialist appointed in terms of the Regulations\_

I, Wouter Fourie, declare that -- General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

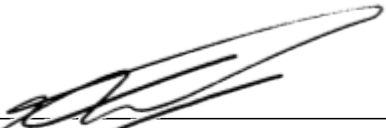
I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

  
\_\_\_\_\_  
Signature of the specialist:

PGS Heritage (Pty) Ltd

\_\_\_\_\_  
Name of company (if applicable):

6 January 2016

\_\_\_\_\_  
Date:





## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.

Specialist:	PGS Heritage (Pty) Ltd		
Contact person:	Gideon Groenewald		
Postal address:	PO Box 32542, Totiusdal		
Postal code:	0134	Cell:	078 713 6377
Telephone:		Fax:	
E-mail:	gideonhgroenewald@gmail		
Professional affiliation(s) (if any)	Palaeontological Society of Southern Africa (society member for 25 years).		
Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a>		

4.2 The specialist appointed in terms of the Regulations\_

I, G Groenewald , declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

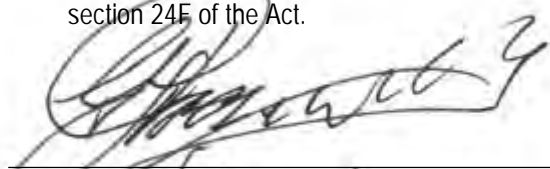
I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24E of the Act.

  
\_\_\_\_\_  
Signature of the specialist:

PGS Heritage (Pty) Ltd

\_\_\_\_\_  
Name of company (if applicable):

3 June 2016

\_\_\_\_\_  
Date:



# environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


## DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

File Reference Number:	(For official use only)
	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

## PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.
---

Specialist:	Mariette Steynberg (social-economic impact assess)		
Contact person:	Mariette Steynberg		
Postal address:	PO Box 13554 - Hatfield		
Postal code:	0028	Cell:	079 029 5586
Telephone:	012 342 8686	Fax:	012 342 8688
E-mail:	mariette@steynberg.com		
Professional affiliation(s) (if any)			

Project Consultant:	SIVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	andrea@sivest.co.za		

4.2 The specialist appointed in terms of the Regulations\_

I, Marete Skynberg, declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

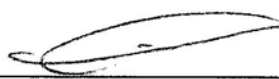
I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

  
Signature of the specialist:

Urizon - Econ Development Economists  
Name of company (if applicable):

7/1/16  
Date:



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

File Reference Number:	(For official use only)
	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.

Specialist:	SiVEST SA (Pty) Ltd		
Contact person:	Shaun Taylor		
Postal address:	P O Box 2921		
Postal code:	2128	Cell:	072 779 4899
Telephone:	011 798 0691	Fax:	011 803 7272
E-mail:	<a href="mailto:shaunt@sivest.co.za">shaunt@sivest.co.za</a>		
Professional affiliation(s) (if any)	South African Wetland Society (SAWS)		

Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a>		

4.2 The specialist appointed in terms of the Regulations\_

I, Shaun Taylor \_\_\_\_\_, declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



\_\_\_\_\_  
Signature of the specialist:

SiVEST (PTY) LTD

\_\_\_\_\_  
Name of company (if applicable):

4 January 2015

\_\_\_\_\_  
Date:



## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


### DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

File Reference Number:	(For official use only)
	To be confirmed.
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

### PROJECT TITLE

Proposed Construction of the Sendawo Substation and 400kV Power Line near Vryburg, North West Province.
---

Specialist:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a>		
Professional affiliation(s) (if any)			
Project Consultant:	SiVEST SA (Pty) Ltd		
Contact person:	Andrea Gibb		
Postal address:	P O Box 2921, Rivonia, South Africa		
Postal code:	2128	Cell:	072 587 6525
Telephone:	011 798 0638	Fax:	011 803 7272
E-mail:	<a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a>		

4.2 The specialist appointed in terms of the Regulations\_

I, Andrea Gibb , declare that --

General declaration:

I act as the independent specialist in this application;

I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

all the particulars furnished by me in this form are true and correct; and

I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.



---

Signature of the specialist:

SiVEST SA (Pty) Ltd

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Name of company (if applicable):

5 January 2016

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Date:





## **Appendix 5: Public Participation**





**Appendix 5A:  
EIA Newsletter**



## sivest\_PPP

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**From:** sivest\_PPP  
**Sent:** 23 May 2016 01:29 PM  
**Cc:** Andrea Gibb; Lynsey Rimbault; 'nicolenev@zitholele.co.za'  
**Subject:** Three Proposed Sendawo Solar Photovoltaic Energy Facilities and Associated Power Line: EIA Newsletter  
**Attachments:** 13033\_Sendawo PV EIA Newsletter\_Rev 1\_23May2016 AG.PDF; A3\_13303\_S\_Project2\_SiteLocality\_Reduced.jpg; A3\_13303\_S\_Project3\_SiteLocality\_Reduced.jpg; A3\_13303\_SPL\_EIA\_RouteOverview\_Reduced.jpg; A3\_13303\_S\_Project1\_SiteLocality\_Reduced.jpg

### Tracking:

Recipient	Delivery	Read
Andrea Gibb	Delivered: 2016/05/23 01:29 PM	
Lynsey Rimbault 'nicolenev@zitholele.co.za'	Delivered: 2016/05/23 01:29 PM	Read: 2016/05/23 01:29 PM
'Alfred Mafune'		
'SM Matsheka'		
'Tebogo Sethosa'		
'Matshediso Mahlaku'		
'Lerato April'		
'Pheladi Masipa'		
'Lizell Stroh'		
'Harry Roberts'		
'Simon Gear'		
'Mmatlala Rabothata'		
'Heleen van den Heever'		
'Bonolo Mohlakoana'		
'Nicole Abrahams'		
'Shaun Dyers'		
'Simphele Masilela'		
'Johanna Morobane'		
'Mashudu Marubini'		
'Anneliza Collett'		
'Thoko Buthelezi'		
'Johan Koegelenberg'		
'Pieter Swart'		
'Claire Phutieagae-Top'		
'Candice Pillay'		
'Berlijn'		
'Arnold Manamela'		
'Lebogang Moinwe'		
'Mboyisi Nombulelo'		
'Mmusi Kgomo'		
'A Appolus'		
'Modisenyane Segapo'		
'Mpho Talane'		

Recipient	Delivery	Read
'Suzanne Erasmus'		
'Sam Fiff'		
'Victor Tlhabanelo'		
'Choanyetso Tladinyane'		
'Ogone Mosiapo'		
'Zebo Tshetlho'		
'Keobome Kehositse'		
'Morgan Griffiths'		
'John Geeringh'		
'Marlaine Andersen'		
'George Ramogogane'		
'Mike Levington'		
'Lourens Leeuwner'		
'Jaco Venter'		
'Seoka Lekota'		
'Godfrey Samore'		
'Ohentse Ernest Lekgwathi'		
'Gomotsegang Sojanja'		
'Tshepo Sojanja'		
'Tshepo Selotlego'		
'Benson T. Tshegetso'		
'Thabo Mosimanyane'		
'Tshepo Mogapi'		
'Charles Otletseng'		
'Eunice Buthelezi'		
'Chris Schutte'		
'Doris Maumela'		
'Kobus Visser'		
'Adele Oberholzer'		
'Lutendo Mphaphuli'		
'Marcus Phaduli'		
'Theo Geldenhuys'		
'Neil Faber'		

\*\*\*\*\* Please note that this email was sent from a NO REPLY email address. Please do not reply to this address as it is an unmonitored email account.\*\*\*\*\*

Dear Stakeholder

We would like to take this opportunity to inform you that the Department of Environmental Affairs (DEA) has accepted the Final Scoping Reports and approved the Plan of Study for the Environmental Impact Phase of the Sendawo 1, 2 and 3 Solar Photovoltaic (PV) Energy Facilities and associated Substation and 400kV Power Line.

Attached is the EIA Newsletter and Site Locality Maps for your information.

Kind Regards,

Andrea Gibb (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management) Environmental Practitioner  
and Visual Specialist SiVEST Environmental Division

SiVEST is a Level 3 BBBEE Contributor

Direct +27 11 798 0638 Tel +27 11 798 0600 fax +27 11 803 7272  
email [andreag@sivest.co.za](mailto:andreag@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

Your reference N/A  
Our reference 13033 - Sendawo  
Date 23 May 2016

Dear Interested and/or Affected or Party,

**ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

- SENDAWO SOLAR 1 – DEA Ref No: 14/12/16/3/3/2/891
- SENDAWO SOLAR 2 – DEA Ref No: 14/12/16/3/3/2/892
- SENDAWO SOLAR 3 – DEA Ref No: 14/12/16/3/3/2/893
- SENDAWO POWER LINE AND SUBSTATION – DEA Ref No: 14/12/16/3/3/2/894

**EIA NEWSLETTER**

We trust that you, as a registered Interested and/or Affected Party (I&AP), have received all the various public documents that have been distributed to date regarding the three Environmental Impact Assessments (EIAs) that are being conducted for the proposed construction of the Sendawo solar photovoltaic (PV) energy facilities and the associated substation and 400kV power line near Vryburg, North West Province. If you have not received any of the public documents, you are most welcome to submit your request to us, in writing by e-mail, fax or letter (contact details below), and we will forward the relevant document(s) that you are interested in.

This EIA Newsletter aims to further facilitate your understanding of the three proposed solar PV energy facilities, the associated substation and 400kV power line as well as the EIA processes, including the public participation process (PPP), being followed. The first phase of the EIA processes (i.e. the environmental scoping studies) have been completed, and the desktop/preliminary specialist assessments and EIA processes were captured in the Final Scoping Reports (FSRs). The FSRs and their supporting documents, including the Plan of Studies (PoS) for the EIAs, were submitted to the Department of Environmental Affairs (DEA) on Friday the 19<sup>th</sup> of February 2016 for review.

The DEA accepted the FSRs on Friday the 1<sup>st</sup> of April 2016. In the letters of acceptance it was indicated that the DEA is satisfied that the content of the FSRs and the PoS for the EIAs comply with the minimum requirements of the EIA Regulations, 2014 and that the EIA processes can proceed in accordance with the tasks in the PoS and requirements of the EIA Regulations, 2014.

**BRIEF OVERVIEW OF THE SOLAR PV PROJECTS**

The development site for the three (3) proposed Sendawo solar PV energy facilities is situated approximately 10km south of Vryburg to the west of the N18. It involves the construction of three (3) solar PV energy facilities with an export capacity of 75MW each and associated infrastructure which includes, on-site switching substations, 132kV



power lines to the proposed Sendawo Substation, laydown areas, access roads and Operation and Maintenance (O&M) buildings.

### ***BRIEF OVERVIEW OF THE 400kV POWER LINE AND SUBSTATION PROJECT***

The proposed on-site substation, namely Sendawo Substation, and associated 400kV power line development is aimed at connecting the three (3) proposed Sendawo solar PV energy facilities onto Eskom's national grid via the existing Mookodi Main Transmission Substation (MTS). The proposed power line corridors for the 400kV power line are 500m wide in order to ensure that all possible environmental impacts (positive as well as negative) are assessed and to allow for flexibility when determining the final route alignment. The corridor width forms part of the Application to the DEA for approval. Should the DEA grant an Environmental Authorisation (EA) for the proposed 400kV power line, the Applicant (BioTherm) will then commence with their negotiations for a 55m wide servitude (27,5m on either side of the centre line of the power line) within the authorised corridor.

### ***SCOPING PHASE***

The environmental scoping study identified and evaluated potential environmental impacts (positive and negative) associated with all aspects of the proposed projects. In terms of the EIA Regulations, 2014, *feasible and reasonable* alternatives have been discussed within the FSRs.

### ***IMPACT PHASE***

The EIA processes for the three proposed Sendawo solar photovoltaic (PV) energy facilities as well as the proposed substation and 400kV power line are being undertaken concurrently. In-depth environmental assessments were conducted by the various environmental specialists between December 2015 and May 2016, as listed in Table 1 below.

During the environmental impact phase, the Draft Environmental Impact Assessment Reports (DEIARs) will be made available for public review and comment for a period of 30 days in accordance with the EIA Regulations, 2014, before the Final Environmental Impact Assessment Reports (FEIARs) are submitted to the DEA. The process to be followed during the EIA phase is indicated below.



**Figure 1: Flow-chart of the EIA process to be followed during the impact phase**

***LOCATION OF THE PROPOSED DEVELOPMENTS***

The Sendawo solar PV energy facilities are located on Portion 1 of the Farm Edinburgh No. 735. The proposed 400kV power line corridors run in a northerly direction from this farm toward the Mookdi MTS. The developments are located within the North West Province, within the Naledi Local Municipality that forms part of the Dr Ruth Segomotsi Mompati District Municipality. The site locality of the four proposed projects are shown in the locality maps included with this newsletter.

***ENVIRONMENTAL STUDIES CONDUCTED***

As previously stated, detailed environmental studies were conducted for each proposed development. The specialist studies and specialists who conducted the studies are provided in the table below.

**Table 1: Specialist studies and specialist conducting the studies**

<b>Name and Organisation</b>	<b>Role</b>
Andrea Gibb and Stephan Jacobs – SiVEST	Visual
David Hoare – David Hoare Consulting	Biodiversity
Chris van Rooyen – Chris van Rooyen Consulting	Avifauna
Shaun Taylor – SiVEST	Surface Water
D.G. Paterson – ARC Institute for Soil, Climate and Water	Agricultural Potential
Wouter Fourie – PGS	Heritage
Gideon Groenewald – PGS	Palaeontology
Elena Broughton and Mariette Steynberg – Urban-Econ Development Economists	Socio-economic
Hermanus Steyn – Aurecon	Traffic and Transport
Nicolene Venter – Zitholele Consulting	Public Participation
Kerry Schwartz – SiVEST	GIS and Mapping

***ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)***

An Environmental Management Programme (EMPr) will also be compiled by SiVEST for each project as part of the environmental impact phase. The EMPr details mitigation and management measures to be undertaken during the construction and operational phases, as well as the decommissioning of a proposed development. Mitigation and management measures address potentially significant impacts associated with activities undertaken during the project phases in order to protect the environment (biophysical as well as social).

The draft EMPrs will be made available to I&APs for review and comments during the same review period as the DEIARs. After the review period the EMPrs will be submitted to the DEA together with the FEIARs for review and decision-making. Should the DEA require any additional mitigation measures or monitoring activities, the EMPrs will be revised to include these recommendations. The EMPr is a tool to ensure that all mitigation requirements that are stipulated in the FEIAR are met and where relevant exceeded.

***PUBLIC PARTICIPATION AND CONSULTATION PROCESS***

Public involvement is one of the cornerstones of an effective EIA as it is your comments that add value to the environmental process. We therefore, once again, request your active participation in this phase of the EIA as your knowledge of the local area will be valuable to the various specialist studies being undertaken.

The PPP that will be followed is indicated below.



**Figure 5: Flow-chart of the PPP to be followed during the impact phase**

**WAY FORWARD**

Please note that public involvement is a two-way communication and consultation process and we kindly request that you as an I&AP or possibly affected landowner:

- provide us with the contact details of your neighbour, friend, family member or colleague who you believe should be informed regarding the proposed projects; or
- provide them with our contact details and request them to contact us directly.

As indicated in the public participation flow-chart, the PPP is an ongoing process. You will thus be informed through personal correspondence and advertisements of the various stages of the EIA.

### **Availability of the Draft Environmental Impact Assessment Reports:**


You, as a registered I&AP will be notified of the availability of the DEIARs which are envisaged to be made available for public review and comment in June 2016.


Should you, during this impact phase, require any additional information or wish to submit comments on the specialist studies or the proposed project, you are welcome to forward your inputs, in writing, to the environmental consultants below.

We look forward to your contributions.


### **COMMENTS AND QUERIES**

Andrea Gibb or Lynsey Rimbault

 PO Box 2921, RIVONIA, 2128

 Phone: (011) 798 0600

 E-mail: andreag@sivest.co.za or lynseyr@sivest.co.za

 Fax: (011) 803 7272

Websites: [www.sivest.co.za](http://www.sivest.co.za)

**Documents Included:** Sendawo Solar 1 Locality Map  
Sendawo Solar 2 Locality Map  
Sendawo Solar 3 Locality Map  
Sendawo Power Line and Substation Locality Map





## **Appendix 5B: Written Notices**





Your reference N/A  
Our reference 13303  
Date 6 January 2016

Dear Interested and/or Affected Party

**ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPRs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE (DEA REFERENCE NUMBERS TO BE CONFIRMED)**

• **INVITATION TO PARTICIPATE IN THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS**

In terms of the EIA Regulations and the National Environmental Management Act, 1998 (Act No. 107 of 1998), SiVEST SA (Pty) Ltd (hereafter referred to as SiVEST) has been appointed as the independent Environmental Assessment Practitioner (EAP) by BioTherm Energy (Pty) Ltd (hereafter referred to as BioTherm) to conduct the EIA process for the proposed development of the three Sendawo 75MW solar photovoltaic (PV) energy facilities and the associated substation and 400kV power line. The proposed projects are located in the North West Province near Vryburg and will be referred to as Sendawo Solar 1, 2 and 3, and Sendawo Power Line and Substation.

SiVEST would like to invite you, as a potential Interested and/or Affected Party (I&AP), to become actively involved in the EIA and public participation process for this proposed project. The aim of this process are as follows:

- to ensure that all the relevant environmental impacts are taken into consideration;
- to ensure public input; and
- provide decision-makers with sufficient information to make an informed decision on the proposed activities.

Attached is the Background Information Document (BID) which contains information regarding the proposed project as well as the EIA and public participation process.

By completing and submitting the accompanying registration and comment form, you will be registered as an I&AP on the project database.

We would like to thank you, in advance, for becoming part of the public participation process and are looking forward to receiving your valuable comments relating to the proposed project.

Yours sincerely



Andrea Gibb  
Environmental Practitioner  
**SiVEST Environmental Division**

**encl:** Background Information Document (BID)  
Registration and Comment Form

U verwysing N.V.T.  
Ons verwysing 13303  
Datum 6 Januarie 2016

Geagte Belangstellende en/of Geaffekteerde Party

**OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE (DO VERWYSINGSNOMMER WORD BEVESTIG)**

• **UITNODIGING OM DEEL TE NEEM AAN DIE OMGEWINGSIMPAKEVALUERINGSPROSES**

Ingevolge die OIE-regulasies en die Nasionale Wet op Omgewingsbestuur, 1998 (Wet 107 van 1998), het BioTherm Energy (Edms.) Bpk. (hierna BioTherm genoem) SiVEST SA (Edms.) Bpk (hierna SiVEST genoem) aangestel as die onafhanklike Omgewingsevalueringspraktisyn (OEP) ten einde die OIE-proses vir die voorgestelde ontwikkeling van die drie Sendawo 75MW fotovoltaïese (FV) sonkragaanlegte, en die geassosieerde substasie en 400kV kraglyn te onderneem. Die voorgestelde projekte is naby Vryburg in die Noordwes Provinsie geleë en sal as Sendawo Solar 1, 2 en 3, en Sendawo kraglyn en substasie bekendstaan.

SiVEST nooi u, as 'n potensiële Belangstellende en/of Geaffekteerde Party (B&GP), uit om aktief by die OIE en openbare deelnameproses vir hierdie voorgestelde projek betrokke te raak. Die doel van hierdie proses is om:

- toe te sien dat oorweging aan al die tersaaklike omgewingsimpakte geskenk word;
- openbare insette te verseker; en
- besluitnemers van voldoende inligting te voorsien om 'n ingeligte besluit oor die voorgestelde aktiwiteite te neem.

Die Agtergrondinligtingsdokument (AID) is aangeheg en bevat inligting oor die voorgestelde projek, asook die OIE- en openbare deelnameproses.

Deur die bygaande registrasie- en kommentaarvorm in te vul en in te dien, sal u outomaties as 'n B&GP op die projek se databasis geregistreer word.

Ons dank u by voorbaat dat u deel word van die openbare deelnameproses en ons sien uit daarna om u waardevolle kommentaar betreffende die voorgestelde projek te ontvang.

Die uwe



Andrea Gibb  
Omgewingspraktisyn  
**SiVEST Omgewingsafdeling**

**Ingeslote dokumentasie:** Agtergrondinligtingsdokument (AID)  
Registrasie- en Kommentaarvorm

# ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

- SENDAWO SOLAR 1 – DEA Ref No: To be announced
- SENDAWO SOLAR 2 – DEA Ref No: To be announced
- SENDAWO SOLAR 3 – DEA Ref No: To be announced
- SENDAWO POWER LINE AND SUBSTATION – DEA Ref No: To be announced

## INTRODUCTION

BioTherm Energy (Pty) Ltd (hereafter referred to as BioTherm) are proposing to develop three (3) Sendawo solar photovoltaic (PV) energy facilities (hereafter referred to as the “proposed development”) near Vryburg within the Dr Ruth Segomotsi Mompoti District of the North West Province. The proposed development will consist of three (3) 75MW solar PV energy facilities, namely Sendawo 1, Sendawo 2 and Sendawo 3. In addition, BioTherm are proposing to construct an associated substation, namely Sendawo substation, and a 400kV power line in order to connect the proposed development to the existing Mookodi Main Transmission Substation (MTS). The PV energy facilities will be connected to the proposed Sendawo substation by 132kV power lines. The overall objective of the project is to generate electricity to feed into the national Eskom grid.

In order to accommodate the Department of Energy’s (DoE) competitive bidding process for procuring renewable energy from Independent Power Producers in South Africa, each PV energy facility will be developed under a separate Special Purpose Vehicle (SPV) and therefore each requires a separate Environmental Authorisation. The Sendawo substation and a 400kV power line will also require a separate Environmental Authorisation. Four (4) Environmental Impact Assessments (EIAs) will therefore be undertaken, three (3) for the proposed Sendawo solar PV energy facilities (one for each PV facility) and one (1) for the proposed Sendawo substation and 400kV power line. Although each PV energy facility and the electrical infrastructure will be assessed separately, a single public participation process is being undertaken for all four (4) proposed projects. The potential environmental impacts associated with all four (4) projects will be assessed during the EIAs as part of a cumulative impact assessment.

The EIAs will be conducted in terms of the 2014 EIA Regulations promulgated in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), which came into effect on the 8th of December 2014. In terms of these regulations, EIAs will be required for the proposed projects. All relevant legislations and guidelines (including Equator Principles) will be consulted during the EIA processes and will be complied with at all times. BioTherm has therefore appointed SiVEST SA (Pty) Ltd (hereafter referred to as SiVEST) as the independent environmental assessment practitioner (EAP), to undertake the required EIA processes in terms of the NEMA.

## PURPOSE OF THIS DOCUMENT

The purpose of this Background Information Document (BID) is to inform Interested and/or Affected Parties (I&APs) about the EIA processes that are being conducted for the proposed development.

In addition to supplying information about the proposed project and the EIA processes, this BID will also provide I&APs with the opportunity to:

- Better understand the proposed development in order to provide comments and raise issues of concern;
- Understand the EIA process in order to participate effectively;
- Make suggestions to enhance the proposed development;
- Comment on the specialist studies that will be conducted; and
- Contribute local knowledge.

## BACKGROUND TO THE PROPOSED PROJECT

In support of, the need to find solutions for the current electricity shortages, the increasing demand for energy, as well as the need to find more sustainable and environmentally friendly energy resources, South Africa has embarked on an infrastructure growth programme supported by various government initiatives. In response to this goal; BioTherm are proposing to establish three (3) 75MW export capacity solar PV energy facilities near Vryburg in the North West Province. The overall objective of the project is to generate electricity to feed into Eskom’s national electricity grid by means of renewable energy technologies.

## WHY USE SOLAR ENERGY?

The benefits of using solar energy include:

- Solar PV facilities have the capability of delivering large-scale utility power;
- Solar energy is renewable, clean and non-polluting (greenhouse gases etc.), and does not produce by-products (atmospheric contaminants or thermal pollution) that could be harmful to the environment;
- Solar PV facilities are generally well suited to rural areas and therefore have a reduced impact on agriculture compared to other electricity generating options;
- Solar PV plants can also contribute to economic growth in these regions;

- Solar energy is one of the lowest-cost producers of electricity;
- Localised production of energy reduces transmission line losses associated with transmitting electricity over long distances; and
- Solar PV facilities improve energy security for South Africa, reducing dependency on fossil fuels.

## PROJECT LOCATION

The proposed project is located within the North West Province approximately 10km south of Vryburg. It falls within the Naledi Local Municipality that forms part of the Dr Ruth Segomotsi Mompoti District Municipality. The application site for the proposed PV energy facilities is approximately 1700 ha however the buildable area will be significantly smaller than this and will be determined by sensitive areas identified during the Scoping Phase of the EIA. The project includes the following farms:

- Portion 1 of the farm Edinburgh No. 735 (PV energy facility and Substation)
- Remainder of the farm Edinburgh No. 735 (Power line)
- Portion 1 of the farm Frankfort No. 672 (Power line)
- Portion 1 of the farm Rosendal No. 673 (Power line)
- Portion 2 of the farm Rosendal No. 673 (Power line)
- Remainder of the farm Rosendal No. 673 (Power line)
- Portion 2 of the farm Waterloo No. 730 (Power line)
- Portion 3 of the farm Waterloo No. 730 (Power line)
- Portion 4 of the farm Waterloo No. 730 (Power line)
- Portion 5 of the farm Waterloo No. 730 (Power line)
- Portion 7 of the farm Waterloo No. 730 (Power line)
- Portion 10 of the farm Waterloo No. 730 (Power line)
- Remainder of the farm Hartsboom No. 734 (Power line)
- Portion 1 of the farm Champions Kloof No. 731 (Power line)
- Portion 2 of the farm Champions Kloof No. 731 (Power line)
- Portion 10 of the farm Champions Kloof No. 731 (Power line)
- Remainder of the farm Brussels No. 736 (Power line)
- The farm Waterloo No. 992 (Power line)

The project site near Vryburg has been identified through pre-feasibility studies conducted by BioTherm based on an estimation of the solar energy resource as well as weather, dust, dirt, and surface albedo. Grid connection and land availability were also important initial considerations. The application site for the three (3) proposed Sendawo solar PV energy facilities and route corridor alternatives for the proposed Sendawo substation and associated 400kV power line are shown on the locality map (Figure 1).

## EIA PROCESS

### What is an EIA?

An EIA is a process of collecting, organising, analysing, interpreting and communicating information that is relevant to consider a particular environmental application. EIAs are used by planning authorities/developers to obtain an independent and objective view of the potential environmental (biophysical and social) impacts that could arise during the construction and operation of the proposed development. This information needs to provide the Competent Authority with a sound basis for their decision-making.

### Legal requirements

According to the NEMA as amended, an EIA process is required as several listed notice 2 activities (GN R. 984) are triggered by each proposed project, which require investigation.

The EIA process that will be followed is illustrated in Figure 2 below.

### ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

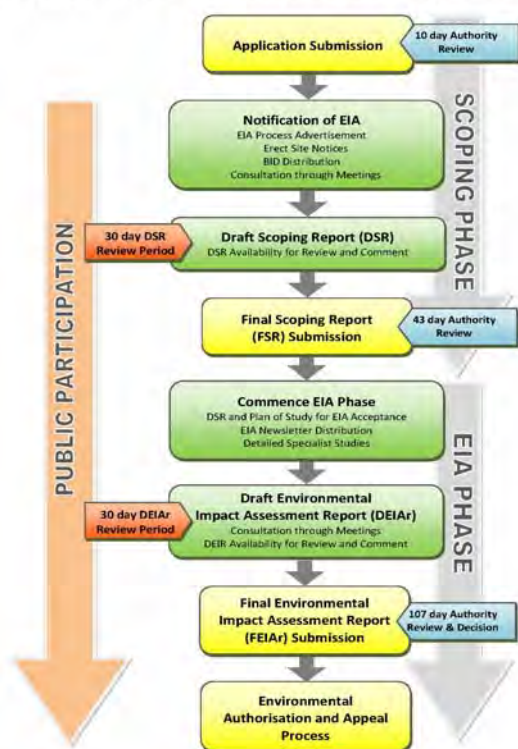


Figure 2: EIA process diagram

### Competent authority

The Competent Authority for this proposed projects is the DEA. However, the provincial authority will also be consulted (i.e. the North West Department of Rural, Environment and Agricultural Development).

### Environmental issues to be investigated during the EIA

Various environmental parameters have been identified that will require investigation for the proposed development.

These are listed in Table 1 below.

Table 1. List of specialists and specialist studies to be undertaken for the proposed development

SKILL	NAME
Biodiversity	David Hoare Consulting – David Hoare
Avifauna	Chris van Rooyen Consulting – Chris van Rooyen
Surface Water	SiVEST – Shaun Taylor
Agricultural Potential and Soils	Agricultural Research Council (ARC): Institute for Soil, Climate and Water – Garry Paterson
Heritage and Palaeontology	PGS – Wouter Fourie
Visual	SiVEST – Andrea Gibb, Stephan Jacobs
Socio-Economic	Urban Econ – Marriette Steynberg
Public Participation	Zitholele Consulting - Nicolene Venter

## THE PUBLIC PARTICIPATION PROCESS

Public participation is the cornerstone of any EIA, as it will be for this proposed projects. The principles of NEMA govern many aspects of an EIA, including public participation. The key objective of public participation during this EIA will be to provide I&APs with sufficient and relevant information and to conduct a transparent consultation process on an on-going basis, in order to ensure effective participation throughout the EIA process. As part of this public participation process you will also be provided with the opportunity to comment on the environmental findings as per the EIA reports (Scoping and Impact Assessment), which will be made available for public review and comment during the process.

It is important that relevant I&APs and Stakeholders are identified and involved in the public participation process from the outset of the proposed projects. As a registered I&AP, you will receive personal notifications, via e-mail, post, fax, and/or sms (where applicable), notifying you of all documents available for comment, the comment periods and the upcoming meetings.

### Your responsibilities as an I&AP

In terms of the EIA Regulations, your attention is drawn to your responsibilities as an I&AP, which are to:

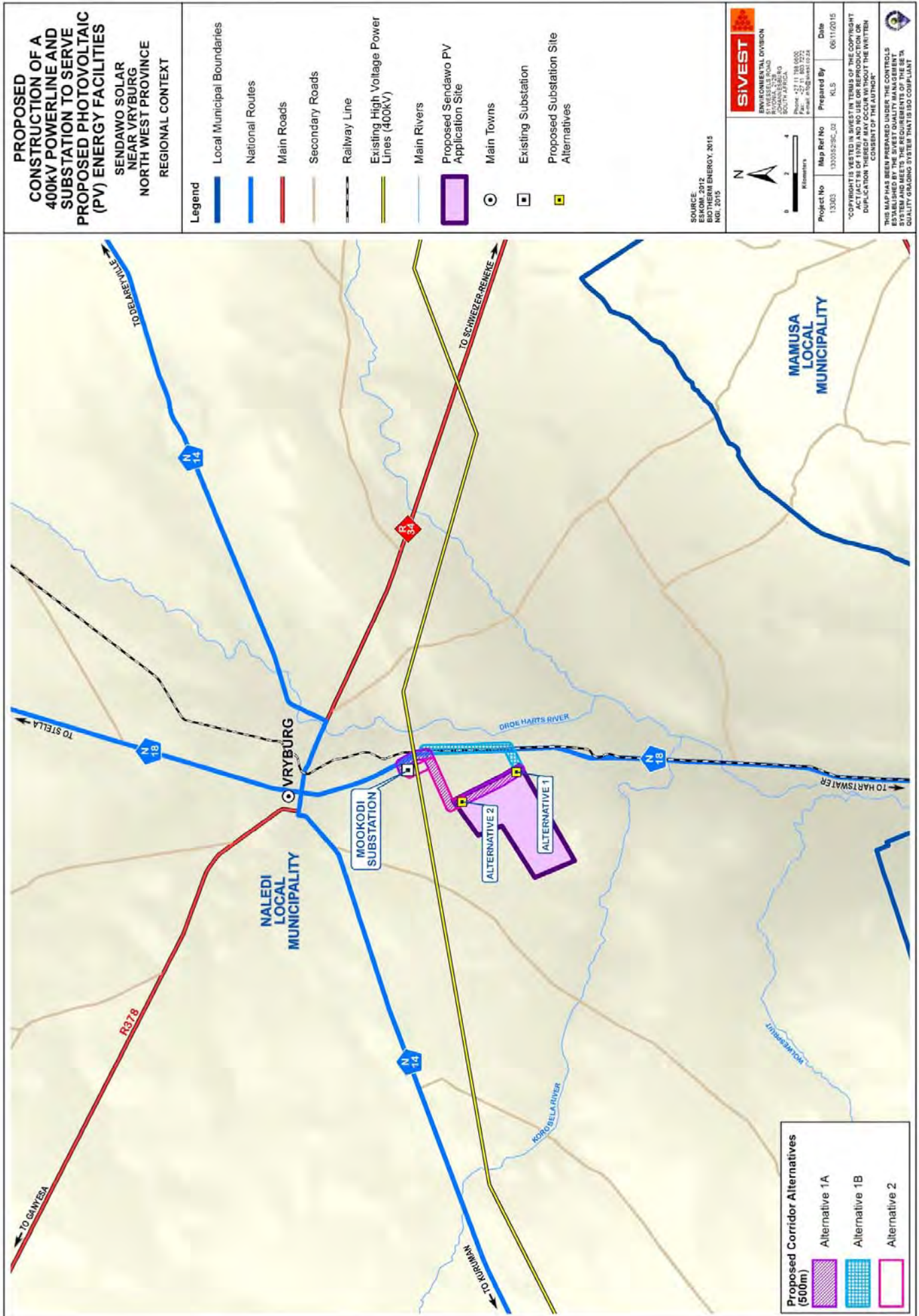
- Participate in this EIA process, register yourself on the project database;
- Inform any other parties (neighbours, friends, colleagues, etc.) who may be interested and/or affected by the proposed project about the EIA process and encourage them to become involved; and
- Ensure that any comments regarding the proposed projects are submitted within the legislated timeframes which will be communicated to you.

### Our responsibilities as the independent EAP

In terms of the EIA Regulations, our responsibilities in the public consultation process include:

- Ensuring that sufficient information regarding the proposed project is made available to you, either through the BID or providing information as and when requested;
- Ensuring that you have an understanding of the proposed project to be able to comment informatively, and to enable you to submit any concern in an informed manner; and
- Ensuring that the following actions are taken upon receiving any comments/queries/issues:
  - ♦ The contact details provided by you will be entered into the project database;
  - ♦ You will be sent all further information releases; and
  - ♦ If you send us queries or comments, we will respond in writing (either via e-mail or within the comments and response report).

Figure 1: Locality Map



## How to become involved

If you wish to register as an I&AP, you can do so by the following methods:

- Respond (by phone, fax, post or e-mail) to our invitation for your participation, which has been advertised in the printed media;
- Post, fax or e-mail the attached Registration and Comment Form to SiVEST;
- Attend the meetings to be held during the course of the project. Should you register as an I&AP you will automatically be invited to attend these meetings;
- Contact us telephonically should you have a query, comment or require further project information; and
- Submit comments on the draft Scoping Report (DSR) and/or the draft Environmental Impact Assessment Report (DEIAR) within the review periods that will be stipulated.

If you consider yourself an I&AP for these proposed projects, we urge you to make use of the opportunities created by the public participation process to become actively involved in the process and provide comment or concerns which affect and/or interest you, or about which you would like more information. Your input into this process forms a key part of the environmental studies and we would like to hear from you to obtain your views on the proposed projects.

By completing and submitting the accompanying Registration and Comment Form, you automatically register yourself as an I&AP for this proposed projects, ensuring that your comments and/or concerns raised will be noted and addressed. The environmental consultants will respond to all comments and queries received during the course of the EIA.

Please be informed that all relevant public documents can be downloaded from the SiVEST's website



**We look forward to your contributions**

**Contact: Andrea Gibb or Lynsey Rimbault**

 **PO Box 2921, RIVONIA, 2128**

 **Phone: (011) 798 0600**

 **E-mail: [andrag@sivest.co.za](mailto:andrag@sivest.co.za) or [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)**

## ***LIST OF ACRONYMS***

<b>BID</b>	Background Information Document
<b>DEA</b>	Department of Environmental Affairs
<b>DEIAR</b>	Draft Environmental Impact Report
<b>DSR</b>	Draft Scoping Report
<b>EAP</b>	Environmental Assessment Practitioner
<b>EMPr</b>	Environmental Management Programme
<b>EIA</b>	Environmental Impact Assessment
<b>FEIAR</b>	Final Environmental Impact Report
<b>Ha</b>	Hectares
<b>I&amp;AP</b>	Interested and/or Affected Party
<b>Km</b>	Kilometre
<b>kV</b>	Kilovolt
<b>MW</b>	Megawatt
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)

# OMGEWINGSIMPAKEVALUERINGS (OIE's) VIR DIE BEOOGDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75 MW FOTOVOLTAÏESE (FV) SONKRAGAANLEGTE EN DIE GEPAARDGAANDE SUBSTASIE EN 400 KV KRAGLYN NABY VRYBURG, NOORDWES-PROVINSIE

- SENDAWO SOLAR 1 – DO Verw. No.: Moet nog aangekondig word
- SENDAWO SOLAR 2 – DO Verw. No.: Moet nog aangekondig word
- SENDAWO SOLAR 3 – DO Verw. No.: Moet nog aangekondig word
- SENDAWO KRAGLYN EN SUBSTASIE – DO Verw. No.: Moet nog aangekondig word

## INLEIDING

BioTherm Energy (Edms.) Bpk. (hierna BioTherm genoem) stel die oprigting voor drie (3) Sendawo fotovoltaïese (FV) sonkragaanlegte (hierna die "beoogde ontwikkeling" genoem) naby Vryburg in die Dr Ruth Segomotsi Mompoti Distriksmunisipaliteit van die Noordwes-provinsie. Die beoogde ontwikkeling sal bestaan uit drie (3) FV-sonkragaanlegte van 75 MW elk wat as Sendawo 1, Sendawo 2 en Sendawo 3 sal bekendstaan.

Daarbenewens beoog BioTherm ook die oprigting van 'n gepaardgaande substasie, naamlik die Sendawo Substasie, en 'n 400 kV kraglyn ten einde die beoogde ontwikkeling met die bestaande Mookodi Hooftransmissiesubstasie (HTS) te verbind. Die FV-kragaanlegte sal aan die hand van 132 kV kraglyne met die beoogde Sendawo Substasie verbind word. Die oorkoepelende doelwit van die projek is om elektrisiteit op te wek om in Eskom se nasionale kragnet in te voer. Ten einde aan die Departement van Energie (DE) se mededingende bodproses vir die verkryging van hernubare krag van Onafhanklike Kragprodusente in Suid-Afrika te voldoen, sal elke FV-aanleg onder 'n aparte Spesialedoelmedium (SDM) ontwikkel word, derhalwe vereis elke aanleg 'n aparte Omgewingsmagtiging. Die Sendawo Substasie en 'n 400 kV kraglyn sal ook 'n aparte Omgewingsmagtiging verg. Vier (4) omgewingsimpakevaluerings (OIE's) sal dus onderneem word; drie (3) vir die beoogde Sendawo FV-sonkragaanlegte (een vir elke FV-aanleg) en een (1) vir die beoogde Sendawo Substasie en 400 kV kraglyn. Hoewel elke FV-kragaanleg en die elektriese infrastruktuur apart geëvalueer sal word, word 'n enkele openbare deelnameproses vir al vier (4) die beoogde projekte onderneem. Die potensiële omgewingsimpakte wat met al vier (4) projekte verband hou, sal tydens die OIE's as deel van 'n kumulatiewe impakevaluering geëvalueer word.

Die OIE's sal ingevolge die 2014 OIE-regulasies onderneem word wat kragtens Artikel 5 van die Nasionale Wet op Omgewingsbestuur, 1998 (Wet 107 van 1998) (NEMA) afgekondig is, wat op 8 Desember 2014 in werking getree het. Ingevolge hierdie regulasies sal OIE's vir die beoogde projekte vereis word. Alle tersaaklike wetgewing en riglyne (insluitend die Ekwatorbeginsels) sal tydens die OIE-prosesse geraadpleeg en ten alle tye aan voldoen word. BioTherm het SiVEST SA (Edms.) Bpk. (hierna SiVEST genoem) derhalwe as die onafhanklike omgewingsevalueringstryk (OEP) aangestel om die nodige OIE-prosesse ingevolge die NEMA te onderneem.

## DOEL VAN HIERDIE DOKUMENT

Die doel van hierdie Agtergrondinligtingsdokument (AID) is om Belangstellende en/of Geaffekteerde Partye (B&GP's) in te lig oor die OIE-prosesse wat vir die beoogde ontwikkeling onderneem word.

Benewens die verskaffing van inligting oor die beoogde projekte en die OIE-prosesse, sal hierdie AID ook aan B&GP's die geleentheid bied om:

- die beoogde ontwikkeling beter te verstaan ten einde kommentaar te lewer en knelpunte te opper;
- die OIE-prosesse te verstaan ten einde doeltreffend daaraan te kan deelneem;
- voorstelle te maak om die beoogde ontwikkeling te verbeter;
- kommentaar te lewer oor die spesialisstudies wat onderneem gaan word; en
- plaaslike kennis by te dra.

## AGTERGROND TOT DIE BEOOGDE PROJEK

Ter ondersteuning van die behoefte om oplossings te vind vir die huidige elektrisiteitstekorte, die groter vraag na elektrisiteit en ook die behoefte om meer volhoubare en omgewingsvriendelike kraghulpbronne te vind, het Suid-Afrika 'n infrastruktuur-groei-program aangepak wat deur verskeie staatsinisiatiewe ondersteun word. In antwoord op hierdie doelwit, doen BioTherm aan die hand om drie (3) 75 MW FV-sonkragaanlegte, elk met 'n uitvoervermoë van 75 MW, naby Vryburg in die Noordwes-provinsie op te rig. Die oorkoepelende doelwit van die projekte is om elektrisiteit op te wek om in Eskom se nasionale kragrooster in te voer aan die hand van hernubare kragtegnologieë.

## WAAROM SONKRAG GEBRUIK?

Die voordele van die benutting van sonkrag sluit die volgende in:

- FV-sonkragaanlegte het die vermoë om grootskaal kommersiële krag te lewer.
- Sonkrag is hernubbaar, skoon en nie-besoedelend (kweekhuysgasse, ens.) en lewer geen nuwe produkte (atmosferiese besoedelaars of termiese besoedeling) op wat skadelik vir die omgewing kan wees nie.
- FV-sonkragaanlegte is oor die algemeen baie gepas vir plattelandse omgewings en derhalwe het dit 'n kleiner impak op landbou in vergelyking met ander kragopwekkingsopsies.
- FV-sonkragaanlegte kan ook bydra tot ekonomiese groei in hierdie gebiede.

- Sonkrag is een van die goedkoopste maniere om elektrisiteit op te wek.
- Plaaslike kragproduksie verminder verliese deur transmissielyn wat gepaardgaan met die oorbring van elektrisiteit oor lang afstande.
- FV-sonkragaanlegte verbeter Suid-Afrika se kragsekerheid, wat sodoende afhanklikheid van fossielbrandstowwe verminder.

## PROJEKLISSING

Die beoogde projekte is geleë in die Noordwes-provinsie, sowat 10 km suid van Vryburg. Dit is in die Naledi Plaaslike Munisipaliteit geleë, wat deel vorm van die Dr Ruth Segomotsi Mompoti Distriksmunisipaliteit. Die aansoekterrein vir die beoogde FV-kragaanlegte beslaan sowat 1 700 ha, hoewel die beboubare gebied wesenlik kleiner as dit sal wees en deur sensitiewe gebiede bepaal sal word wat tydens die Bestekopnamefase en die OIE geïdentifiseer sal word. Die projekte sluit die volgende plase in:

- Gedeelte 1 van die plaas Edinburgh No. 735 (FV-aanleg en Substasie)
- Restant van die plaas Edinburgh No. 735 (Kraglyn)
- Gedeelte 1 van die plaas Frankfort No. 672 (Kraglyn)
- Gedeelte 1 van die plaas Rosendal No. 673 (Kraglyn)
- Gedeelte 2 van die plaas Rosendal No. 673 (Kraglyn)
- Restant van die plaas Rosendal No. 673 (Kraglyn)
- Gedeelte 2 van die plaas Waterloo No. 730 (Kraglyn)
- Gedeelte 3 van die plaas Waterloo No. 730 (Kraglyn)
- Gedeelte 4 van die plaas Waterloo No. 730 (Kraglyn)
- Gedeelte 5 van die plaas Waterloo No. 730 (Kraglyn)
- Gedeelte 7 van die plaas Waterloo No. 730 (Kraglyn)
- Gedeelte 10 van die plaas Waterloo No. 730 (Kraglyn)
- Restant van die plaas Hartsboom No. 734 (Kraglyn)
- Gedeelte 1 van die plaas Champions Kloof No. 731 (Kraglyn)
- Gedeelte 2 van die plaas Champions Kloof No. 731 (Kraglyn)
- Gedeelte 10 van die plaas Champions Kloof No. 731 (Kraglyn)
- Restant van die plaas Brussels No. 736 (Kraglyn)
- Die plaas Waterloo No. 992 (Kraglyn)

Die projekterrein naby Vryburg is geïdentifiseer deur vooraf-bedryfbaarheidstudies wat BioTherm op grond van 'n beraming van die sonkraghulpbron asook die weer, stof, grond en oppervlakkalbedo onderneem het. 'n Roosterkonneksie en die beskikbaarheid van grond was ook aanvanklik belangrike oorwegings. Die aansoekterrein vir die drie (3) beoogde Sendawo FV-sonkragaanlegte en alternatiewe roetekorridors vir die beoogde Sendawo Substasie en gepaardgaande 400 kV kraglyn word op die ligging-skaart aangedui (Figuur 1).

## OIE-PROSES

### Wat is 'n OIE?

'n OIE is 'n proses waardeur inligting wat tersaaklik is vir die oorweging van 'n betrokke omgewingsaansoek versamel, georganiseer, ontleed, vertolk en gekommunikeer word. OIE's word deur beplanningsowerhede/ ontwikkelers gebruik om 'n onafhanklike en objektiewe siening van die potensiële omgewingsimpakte (biofisies en maatskaplik) te verkry wat tydens die oprigting en bedryf van die beoogde ontwikkeling kan opduik. Hierdie inligting moet die Bevoegde Owerheid 'n konkrete grondslag vir hul besluitneming bied.

### Wetlike vereistes

Kragtens NEMA, soos gewysig, moet 'n OIE-proses onderneem word aangesien verskeie gelyste kennisgewing 2-aktiwiteite (Staatskennisgewing R984), waartoe elk van die beoogde projekte aanleiding gee, ondersoek verg.

Die OIE-proses wat gevolg sal word, word in Figuur 2 hieronder uiteengesit.

## Omgewingsvraagstukke wat tydens die OIE ondersoek gaan word

Verskeie omgewingsparameters is geïdentifiseer, wat vir die beoogde ontwikkeling ondersoek sal moet word. Dit word in Tabel 1 hieronder gelys.

Tabel 1. Lys van spesialiste en spesialisstudies wat vir die beoogde ontwikkeling onderneem word.

VAARDIGHEID	NAAM
Biodiversiteit	David Hoare Consulting – David Hoare
Avifauna	Chris van Rooyen Consulting – Chris van Rooyen
Oppervlakkwater	SiVEST – Shaun Taylor
Landboupotensiaal en Grondsoorte	Landbounavorsingsraad (LNR): Instituut vir Grond, Klimaat en Water – Garry Paterson
Erfenis en Paleontologie	PGS – Wouter Fourie
Visueel	SiVEST – Andrea Gibb, Stephan Jacobs
Sosio-ekonomies	Urban Econ – Marriette Steynberg
Openbare Deelname	Zitholele Consulting – Nicolene Venter

## DIE OPENBARE DEELNAMEPROSES

Openbare deelname is die hoeksteen van enige OIE, soos ook die geval is vir hierdie beoogde projekte. Die beginsels van NEMA beheer baie aspekte van 'n OIE, insluitend openbare deelname. Die primêre doelwit van openbare deelname gedurende hierdie OIE sal wees om B&GP's te voorsien van genoegsame en tersaaklike inligting en om 'n volgehoue deursigtige oorlegplegingsproses te onderneem ten einde doeltreffende deelname regdeur die OIE-proses te verseker. As deel van hierdie openbare deelnameproses sal u ook die geleentheid gebied word om kommentaar te lewer oor die omgewingsbevindinge van die OIE-verslae (Bestekopname en Impakevaluering) wat tydens die proses vir openbare oorsig en kommentaar beskikbaar gestel sal word.

Dit is belangrik dat tersaaklike B&GP's en Belanghebbendes uit die staanspoor van die beoogde projekte geïdentifiseer en by die openbare deelnameproses betrek word. As 'n geregistreerde B&GP sal u persoonlike kennisgewings per e-pos, pos, faks en/of sms (waar van toepassing) ontvang, wat u in kennis sal stel van alle dokumente wat beskikbaar is vir kommentaar, wat die kommentaartydperke is en van vergaderings wat binnekort gehou gaan word.

### U verantwoordelikhede as 'n B&GP

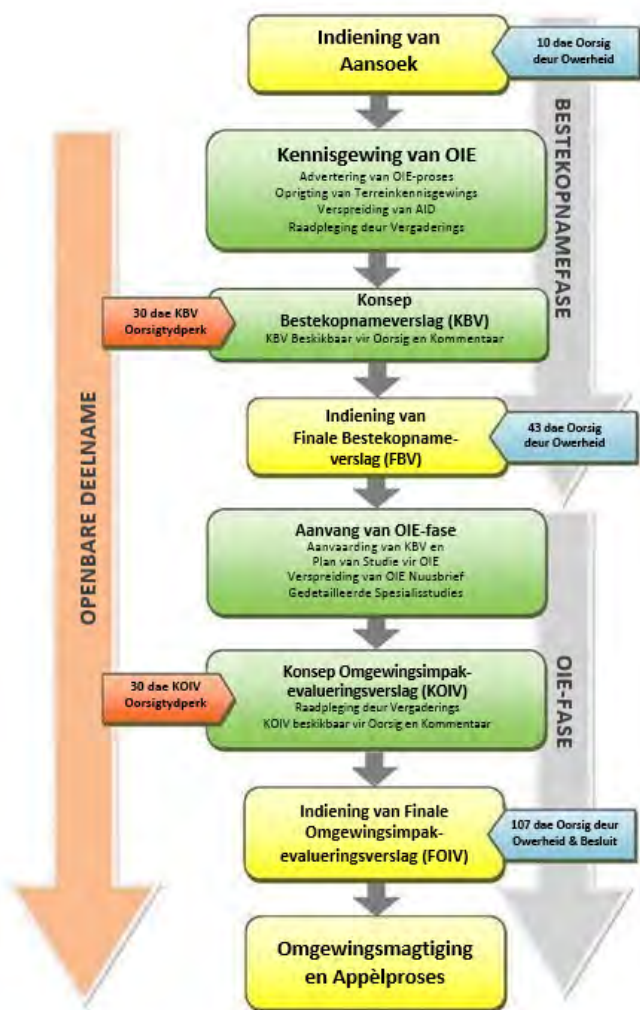
Kragtens die OIE-regulasies, word u aandag gevestig op u verantwoordelikhede as 'n B&GP, naamlik:

- Deel neem aan hierdie OIE-proses; registreer uself op die projek se databasis.
- Stel alle ander partye (bure, vriende, kollegas, ens.) wat kan belangstel in en/of geaffekteer word deur die beoogde projek in kennis van die OIE-proses en moedig hulle aan om betrokke te raak.
- Sien toe dat enige kommentaar rakende die beoogde projekte binne die wetlike spertye ingedien word wat aan u gekommunikeer is.

### Ons verantwoordelikhede as die Onafhanklike OEP

Ingevolge die OIE-regulasies, sluit ons verantwoordelikhede in die openbare deelnameproses die volgende in:

- Sien toe dat B&GP's genoegsame inligting betreffende die beoogde projek ontvang, hetsy deur die AID of deur inligting te verskaf soos en wanneer dit versoek word.
- Sorg dat B&GP's van 'n voldoende begrip van die beoogde projek verskaf word sodat hulle in staat is om betekenisvolle en ingeligte kommentaar te lewer en knelpunte te opper.
- Sien toe dat die volgende aksies met ontvangs van enige kommentaar/navraag/vraagstuk geneem word:
  - Die kontakbesonderhede wat u verskaf het sal in die projekdatabasis ingevoer word.
  - U sal alle toekomstige bekendmakings van inligting ontvang.
  - Indien u navrae of kommentaar aan ons rig, sal ons reageer (hetsy per e-pos of in die kommentaar- en antwoordverslag).



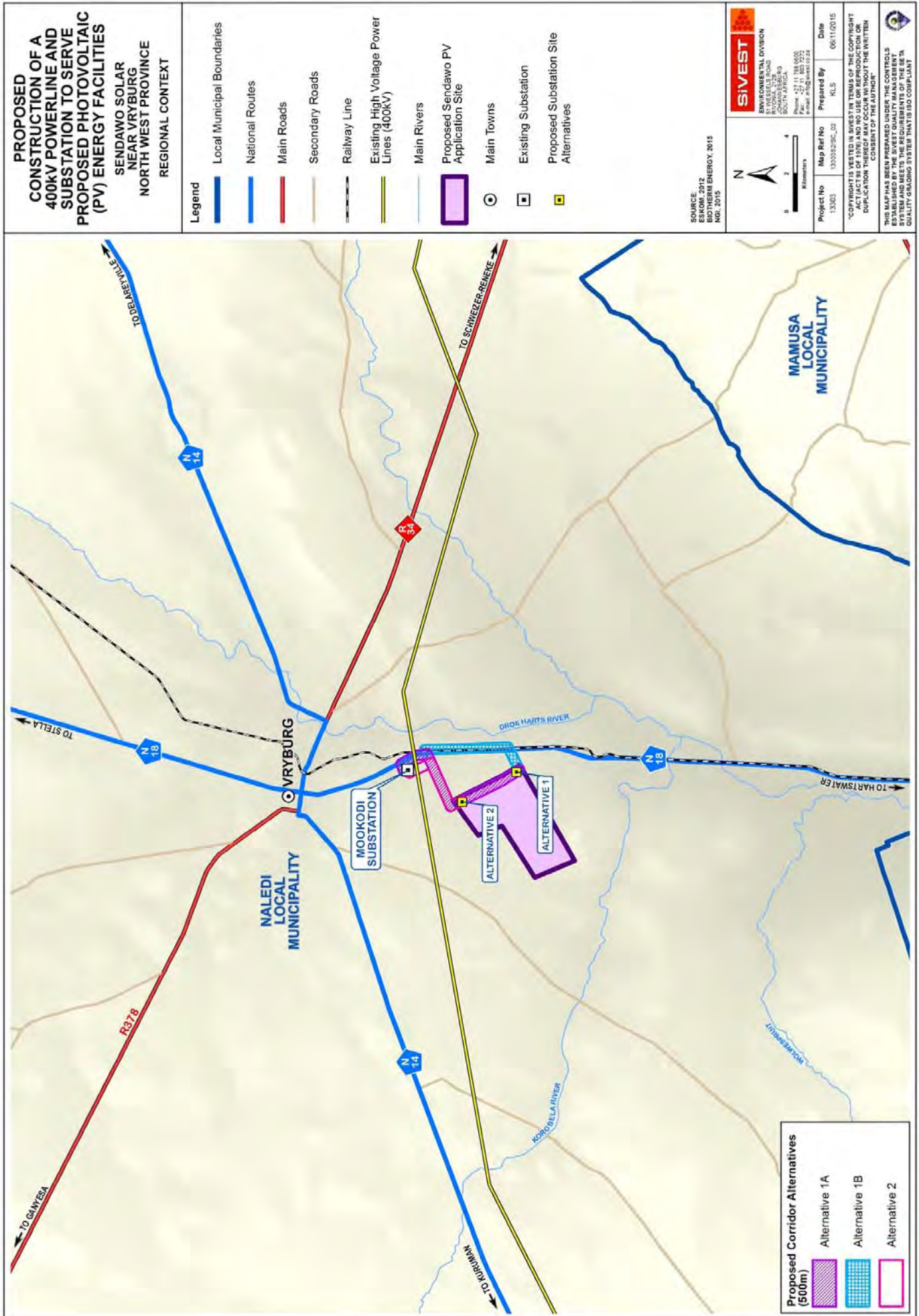
Figuur 2: Diagram van OIE-proses

### Bevoegde Owerheid

Die DO is die Bevoegde Owerheid vir hierdie beoogde projekte. Die provinsiale owerheid (d.i. die Noordwes Departement van Landelike, Omgewings- en Landbou-ontwikkeling) sal egter ook geraadpleeg word.



Figuur 1: Liggingskaart



## Hoe om betrokke te raak

Indien u as 'n B&GP wil registreer, kan u dit aan die hand van die volgende metodes doen:

- Reageer (per telefoon, faks, pos of e-pos) op ons uitnodiging vir u deelname, wat in die gedrukte media geadverteer is.
- Pos, faks of e-pos die aangehegte Registrasie- en Kommentaarvorm aan SiVEST.
- Woon die vergaderings by wat gedurende die verloop van die projek gehou sal word. Indien u as 'n B&GP registreer, sal u outomaties uitgenooi word om hierdie vergaderings by te woon.
- Tree telefonies met ons in verbinding indien u 'n navraag of kommentaar het of verdere projekinligting verlang.
- Lewer kommentaar op die Konsep Bestekopnameverslag (KBV) en/of die Konsep Omgewingsimpakevalueringverslag (KOIV) binne die oorsigtidperke wat bekendgemaak sal word.

Indien u uself as 'n B&GP vir hierdie beoogde projekte ag, moedig ons u aan om gebruik te maak van die geleenthede wat deur die openbare deelnameproses geskep word om aktief by die proses betrokke te raak en kommentaar te lewer of daardie vraagstukke of knelpunte te opper wat u raak en/of waarin u belangstel of waaroor u meer inligting verlang. U insette in hierdie proses vorm 'n belangrike deel van die omgewingstudies en ons hoor graag van u om u siening oor die beoogde projekte te bekom.

Deur die meegaande Registrasie en Kommentaarvorm in te vul en in te dien, registreer u uself outomaties as 'n B&GP vir hierdie beoogde projekte en verseker u dat kennis geneem word van die kommentaar en/of knelpunte wat u opper. Die omgewingskonsultante sal op alle kommentaar en navrae reageer wat tydens die verloop van die OIE ontvang word.

Let asseblief daarop dat alle tersaaklike publieke dokumente van SiVEST se webwerf afgelaai kan word.



*Ons sien uit na u bydraes*

Kontak: Andrea Gibb of Lynsey Rimbault

✉ Posbus 2921, RIVONIA, 2128

☎ Tel: 011 798 0600

✉ E-pos: [andrea@sivest.co.za](mailto:andrea@sivest.co.za) of [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

☎ Faks: 011 803 7272

Webwerf: [www.sivest.co.za](http://www.sivest.co.za)

## **LIST OF ACRONYMS**

<b>BID</b>	Background Information Document
<b>DEA</b>	Department of Environmental Affairs
<b>DEIAr</b>	Draft Environmental Impact Report
<b>DSR</b>	Draft Scoping Report
<b>EAP</b>	Environmental Assessment Practitioner
<b>EMPr</b>	Environmental Management Programme
<b>EIA</b>	Environmental Impact Assessment
<b>FEIAr</b>	Final Environmental Impact Report
<b>Ha</b>	Hectares
<b>I&amp;AP</b>	Interested and/or Affected Party
<b>Km</b>	Kilometre
<b>kV</b>	Kilovolt
<b>MW</b>	Megawatt
<b>NEMA</b>	National Environmental Management Act, 1998 (Act No. 107 of 1998)

EIA AND EMPr FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Public Participation Office



Andrea Gibb / Lynsey Rimbault  
 SiVEST Environmental  
 PO Box 2921, RIVONIA, 2128  
 Tel (011) 798 0600  
 Fax (011) 803 7272  
 Email andrea@sivest.co.za /  
 lynseyr@sivest.co.za

**REGISTRATION AND COMMENT FORM**

Accompanying Background Information Document: 6 January 2016



*Please complete and return by post, fax or e-mail to the Public Participation Office (as above)*

TITLE		FIRST NAME	
INITIALS		SURNAME	
ORGANISATION		EMAIL	
POSTAL ADDRESS			
		POSTAL CODE	
TEL NO		FAX NO	

**REGISTRATION AS INTERESTED AND/OR AFFECTED PARTY (I&AP) (please circle applicable box)**

Please <b>formally register me as an interested and affected party (I&amp;AP)</b> so that I may receive further information and notifications during the EIA process	YES	NO
In terms of GNR 982 (2014 EIA regulations) I disclose below any direct business, financial, personal or other interest that I may have in the granting or rejection of the application for environmental authorisation (please use separate sheets if you wish): ..... .....		

**COMMENTS** (please use separate sheets if you wish)

I suggest that the following issues of concern be investigated in the EIA:

.....  
 .....  
 .....

I suggest the following for the EIA process and / or the public participation process:

.....  
 .....

Any other comments:

.....  
 .....  
 .....  
 .....

Please contact the following colleagues/friends to register as I&APs for this EIA (name and contact details e.g. e-mail address):

.....  
 .....

Signature

THANK YOU FOR YOUR CONTRIBUTION

Date

OIE EN OBPr VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE

## REGISTRASIE- EN KOMMENTAARVORM

Vergesel die Agtergrondinligtingsdokument: 6 Januarie 2016



### Openbare Deelnamekantoor



Andrea Gibb / Lynsey Rimbault  
SiVEST Environmental  
Posbus 2921, RIVONIA, 2128  
Tel: 011 798 0600  
Faks: 011 803 7272  
E-pos: andreag@sivest.co.za /  
lynseyr@sivest.co.za

Vul asseblief in en stuur dit per pos, faks of e-pos terug aan die Openbare Deelnamekantoor (soos hierbo).

TITEL		VOORNAAM	
VOORLETTERS		VAN	
INSTANSIE		E-POS	
POSADRES			
		POSKODE	
TEL NO.		FAKS NO.	

### REGISTRASIE AS BELANGSTELLENDEN EN/OF GEAFFEKTEERDE PARTY (B&GP) (omkring asseblief die toepaslike blokkie)

Registreer my asseblief formeel as 'n belangstellende en geaffekteerde party (B&GP) sodat ek verdere inligting en kennisgewings tydens die OIE-proses kan ontvang.	JA	NEE
Ingevolge Staatskennisgewing R982 (2014 OIE-regulasies) maak ek hieronder enige regstreekse sake, finansiële, persoonlike of ander belang wat ek mag hê in die goedkeuring of afkeuring van die aansoek om omgewingsmagtiging bekend (gebruik gerus aparte bladsye indien u wil):		
.....		
.....		

### KOMMENTAAR (gebruik gerus aparte bladsye indien u wil)

Ek stel voor dat die volgende knelpunte tydens die OIE ondersoek word:

.....

.....

.....

Ek stel die volgende vir die OIE-proses en/of die openbare deelnameproses voor:

.....

.....

Enige ander kommentaar:

.....

.....

.....

.....

.....

.....

.....

.....

Tree asseblief in verbinding met my onderstaande kollegas/vriende om as B&GP's vir hierdie OIE te registreer (naam en kontakbesonderhede, bv. e-posadres):

.....

.....

Handtekening

DANKIE VIR U BYDRAE

Datum

## Hlengiwe Ntuli

---

**From:** Hlengiwe Ntuli  
**Sent:** 06 January 2016 09:39 AM  
**Cc:** Andrea Gibb; Lynsey Rimbault  
**Subject:** Sendawo Solar PV Developments: EIAs Commencing  
**Attachments:** 13033 BID SENDAWO (AFR).pdf; 13033 BID SENDAWO.PDF; 13303\_Sendawo PV and Grid\_Draft BID Reg Comm Form\_Rev 1\_25Nov2015\_LR AFR....pdf; 13303\_Sendawo PV and Grid\_Draft BID Reg Comm Form\_Rev 1\_25Nov2015\_LR.PDF

### Tracking:

#### Recipient

#### Read

Andrea Gibb	Read: 2016/01/06 10:00 AM
Lynsey Rimbault	
'Wessel Wessels'	
'Amanda Bester'	
'Thoko Buthelezi'	
'Tebogo Sethosa'	
'Jan Steunman'	
'Lizell Stroh'	
'Simphiwe Masilela'	
'Harry Roberts'	
'J Hechter'	
'Pogiso Maitshotlo'	
'Pieter Swart'	
'Mpho Phiri'	
'Nono Dince'	
'Yoliswa Sechoaro'	
'Lehlohonolo March'	
'SM Matsheka'	
'Matshediso Mahlaku'	
'Mashudu Marubini'	
'Lourens Leeuwner'	
'Lesego Holele'	
'Johan Koegelenberg'	
'Kobus Visser'	
'Johanna Morobane'	
'Jenna Lavin'	
'Suzanne Erasmus'	
'KRJ Zandamela'	
'JH Nel'	
'Gysbert Goedhals'	
'Godfrey Samore'	
'G Pieterse'	
'John Geeringh'	
'Sam Fiff'	
'M W Moholatsi'	

**Recipient**

**Read**

- 'Shaun Dyers'
- 'Ferdinand Hartzenberg'
- 'J Molefe'
- 'Bonolo Mohlakoana'
- 'Anneliza Collett'
- 'Simon Gear'
- 'Nicolene Abrahams'

\*\*\*\*\* Please note that this email was sent from a NO REPLY email address. Please do not reply to this address as it is an unmonitored email account. \*\*\*\*\* Dear Interested and/or Affected Party

ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPrs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE (DEA REFERENCE NUMBERS TO BE CONFIRMED)

- INVITATION TO PARTICIPATE IN THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

In terms of the EIA Regulations and the National Environmental Management Act, 1998 (Act No. 107 of 1998), SiVEST SA (Pty) Ltd (hereafter referred to as SiVEST) has been appointed as the independent Environmental Assessment Practitioner (EAP) by BioTherm Energy (Pty) Ltd (hereafter referred to as BioTherm) to conduct the EIA process for the proposed development of the three Sendawo 75MW solar photovoltaic (PV) energy facilities and the associated substation and 400kV power line. The proposed projects are located in the North West Province near Vryburg and will be referred to as Sendawo Solar 1, 2 and 3, and Sendawo Power Line and Substation.

SiVEST would like to invite you, as a potential Interested and/or Affected Party (I&AP), to become actively involved in the EIA and public participation process for this proposed project. The aim of this process are as follows:

- ☐ to ensure that all the relevant environmental impacts are taken into consideration;
- ☐ to ensure public input; and
- ☐ provide decision-makers with sufficient information to make an informed decision on the proposed activities.

Attached is the Background Information Document (BID) which contains information regarding the proposed project as well as the EIA and public participation process.

By completing and submitting the accompanying registration and comment form, you will be registered as an I&AP on the project database.

We would like to thank you, in advance, for becoming part of the public participation process and are looking forward to receiving your valuable comments relating to the proposed project.

\*\*\*\*\*  
\*\*\*\*\*

Geagte Belangstellende en/of Geaffekteerde Party

OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE (DO VERWYSINGSNOMMER WORD BEVESTIG)

- **UITNODIGING OM DEEL TE NEEM AAN DIE OMGEWINGSIMPAKEVALUERINGSPROSES**

Ingevolge die OIE-regulasies en die Nasionale Wet op Omgewingsbestuur, 1998 (Wet 107 van 1998), het BioTherm Energy (Edms.) Bpk. (hierna BioTherm genoem) SiVEST SA (Edms.) Bpk (hierna SiVEST genoem) aangestel as die onafhanklike Omgewingsevalueringpraktisyn (OEP) ten einde die OIE-proses vir die voorgestelde ontwikkeling van die drie Sendawo 75MW fotovoltaiiese (FV) sonkragaanlegte, en die geassosieerde substasie en 400kV kraglyn te onderneem. Die voorgestelde projekte is naby Vryburg in die Noordwes Provinsie geleë en sal as Sendawo Solar 1, 2 en 3, en Sendawo kraglyn en substasie bekendstaan.

SiVEST nooi u, as 'n potensiële Belangstellende en/of Geaffekteerde Party (B&GP), uit om aktief by die OIE en openbare deelnameproses vir hierdie voorgestelde projek betrokke te raak. Die doel van hierdie proses is om:

- ☐ toe te sien dat oorweging aan al die tersaaklike omgewingsimpakte geskenk word;
- ☐ openbare insette te verseker; en
- ☐ besluitnemers van voldoende inligting te voorsien om 'n ingeligte besluit oor die voorgestelde aktiwiteite te neem.

Die Agtergrondinligtingsdokument (AID) is aangeheg en bevat inligting oor die voorgestelde projek, asook die OIE- en openbare deelnameproses.

Deur die bygaande registrasie- en kommentaarvorm in te vul en in te dien, sal u outomaties as 'n B&GP op die projek se databasis geregistreer word.

Ons dank u by voorbaat dat u deel word van die openbare deelnameproses en ons sien uit daarna om u waardevolle kommentaar betreffende die voorgestelde projek te ontvang.

Kind Regards

Andrea Gibb (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management) Environmental Practitioner and Visual Specialist SiVEST Environmental Division

SiVEST is a Level 3 BBBEE Contributor

Direct +27 11 798 0638 Tel +27 11 798 0600 fax +27 11 803 7272  
email [andreag@sivest.co.za](mailto:andreag@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

Your reference:

Our reference: 13303 - Sendawo

Date: 11 January 2016

Dear Interested and/or Affected Party

**ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPRs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE (DEA REFERENCE NUMBERS TO BE CONFIRMED)**

• **AVAILABILITY OF DRAFT SCOPING REPORTS FOR PUBLIC REVIEW**

We would like to take this opportunity to inform you that, in accordance with the National Environmental Management Act (NEMA), the Draft Scoping Reports (DSRs) will be available for public comment and review as from **Monday 11 January 2016 to Tuesday 9 February 2016** (end of business day). A DSR comment form is attached to this correspondence for your perusal. Should you wish to receive an electronic copy of the DSRs (CD) please forward your request in writing to us. Hard copies of the DSRs can be reviewed at the following public place:

VENUE	STREET ADDRESS	HOURS	CONTACT NO
Vryburg Public Library	63 Stella Street, Vryburg	Mondays- Fridays 09h30 – 17h30	053 928 2270

The reports are also available on SiVEST's website: <http://www.sivest.co.za/>, then browse to the folder '13303 Sendawo PV Energy Development'.

We would like to thank you in anticipation of your active and meaningful contribution to the EIA and Public Participation process.

Kind Regards



Andrea Gibb  
Environmental Consultant  
**SiVEST Environmental Division**

Documents attached: DSR Comment Form



U verwysing:

Ons verwysing: 13303 - Sendawo

Datum: 11 Januarie 2016

Beste Belangstellende en/of Geaffekteerde Party

**OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE (DO VERWYSINGSNOMMER WORD BEVESTIG)**

• **UITNODIGING OM KOMENTAAR TE LEWER OP DIE KONSEP BESTEKOPNAMEVERSLAE**

Graag maak ons van hierdie geleentheid gebruik om u in te lig dat, ingevolge die Nasionale Wet op Omgewingsbestuur (NEMA), die Konsep Bestekopnameverslae beskikbaar sal wees vir openbare kommentaar en oorsig vanaf **Maandag, 11 Januarie 2016** tot **Dinsdag, 9 Februarie 2016** (teen sluitingstyd). Sou u graag 'n elektroniese kopie van die Konsep Bestekopnameverslae op CD wil ontvang, kan u dit skriftelik by ons aanvra. Gedrukte eksemplare van die Konsep Bestekopnameverslae sal ook by die volgende openbare plek beskikbaar wees vir besigtiging:

PLEK	STRAATADRES	KANTOOR URE	KONTAKNO.
Vryburg Openbare Biblioteek	Stellastraat 63, Vryburg	Maandae- Vrydae 09h30 – 17h30	053 928 2270

Die Verslae is ook op SiVEST se webtuiste beskikbaar: <http://www.sivest.co.za/>, klik dan op die legger '13303 Sendawo PV Energy Development'.

Ons moedig u bywoning en deelname by die Publiekevergadering aan en dank u byvoorbaat vir u aktiewe en betekenisvolle bydrae tot die OIS-proses.

Vriendelike groete



Andrea Gibb  
Omgewingskonsultant  
**SiVEST Omgewingsafdeling**

Ingeslote Dokumente: Komentaarvorm

Your reference:

Our reference: 13303 – Sendawo PV

Date: 19 February 2016

Dear Interested and/or Affected Party

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE THREE SENDAWO SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED 400KV POWER LINE AND SUBSTATION NEAR VRYBURG, NORTH WEST PROVINCE**

DEA Ref.      **SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891**  
                  **SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892**  
                  **SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893**  
                  **SENDAWO GRID: 14/12/16/3/3/2/894**

• **FSR AVAILABLE FOR REVIEW**

We wish to express our appreciation to the stakeholders who submitted comments on the Draft Scoping Reports (DSRs) for the above mentioned proposed projects during the public review period (Monday 11 January 2016 to Tuesday 9 February 2016). After the public review period, the DSRs were updated, taking into consideration the issues and concerns raised by stakeholders.

The Final Scoping Reports (FSRs) were submitted to the Department of Environmental Affairs (DEA) for their consideration on Friday 19 February 2016.

In accordance with the National Environmental Management Act (NEMA), the FSRs will be available for public comment and review from **Monday 22 February 2016 to Monday 7 March 2016** (end of business day). The FSRs are available on SiVEST's website: <http://www.sivest.co.za/> click on 'Downloads' (top right), then scroll down to *13303 Sendawo PV Energy Development*. Alternatively, please contact SiVEST to obtain an electronic copy of the reports on CD.

Should you have any comments on the FSRs, please submit these in writing directly to the DEA on or before **Monday 7 March 2016** (close of business day):

**Department of Environmental Affairs (DEA)**

Mr. Herman Alberts  
Private Bag X447  
PRETORIA  
0001  
Tel: 012 399 9371  
Email: [HALberts@environment.gov.za](mailto:HALberts@environment.gov.za)

As per the EIA Regulations, please send a copy of your comments to the SiVEST Office at the following address:

**SiVEST Environmental**  
Lynsey Rimbault  
PO BOX 2921  
Rivonia  
2128  
Tel: 011 798 0600  
Fax: 011 803 7272  
Email: [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

Kind Regards,

A handwritten signature in black ink that reads "Rebecca Thomas". The signature is written in a cursive style with a large, stylized initial "R" and "T".

Rebecca Thomas  
Environmental Practitioner  
**SiVEST Environmental Division**

Your reference

Our reference 13303

Date 7 March 2016

Dear Interested and Affected Party,

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

DEA Ref. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894

• **INVITATION TO PUBLIC MEETING**

We would like to take this opportunity to invite you to attend the Public Meeting that will be held for the above-mentioned proposed project on:

DATE	TIMES	VENUES
Tuesday, 15 March 2016	<b>Starts at: 18h00</b> <b>Registration from: 17h45</b>	Huhudi Community Hall, at Mosiapoa St and Voortrekker St, Vryburg

To ensure that sufficient seating is provided at the venue, we kindly request that you complete the attached Registration Form and return it to the Public Participation team on or before Friday, 11 March 2016.

The purpose of the Public Meeting is outlined in the attached draft agenda.

Your input into this EIA process is highly valued as it will help identify, and if required address, any environmental impacts that may be associated with this proposed project during the Scoping phase.

We encourage you to attend and participate in the Public Meeting and thank you in anticipation for your active and meaningful contribution to the EIA process.

Yours sincerely,



Rebecca Thomas  
Environmental Practitioner  
**SIVEST Environmental Division**

**Documents attached:** Draft Agenda  
Registration Form

U verwysing  
Ons verwysing 13303  
Datum 7 Maart 2016

Beste Belangstellende en/of Geaffekteerde Party,

**OMGEWINGSIMPAAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE**

**DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891**  
**SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892**  
**SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893**  
**SENDAWO GRID: 14/12/16/3/3/2/894**

• **UITNODIGING NA PUBLIEKEVERGADERING**

Ons maak graag van hierdie geleentheid gebruik om u uit te nooi om die Publiekevergadering wat vir die bogenoemde voorgestelde projek gehou word op:

DATUM	TYD	PLEK
Dinsdag 15 Maart 2016	<b>Begin om: 18h00</b> <b>Registrasie vanaf: 17h45</b>	Huhudi Gemeenskapsaal, h/v Mosiapoa en Voortrekkerstrate, Vryburg

Om te verseker dat ons voorsiening maak vir alle teenwoordiges, versoek ons u vriendelik om die ingeslote Registrasievorm te voltooi en aan die Openbare Deelname span te stuur voor of op Vrydag, 11 Maart 2016.

Die doel van die Publiekevergadering is vervat in die ingeslote konsep agenda.

U insette in die OIS-proses word hoog op prys gestel aangesien dit sal bydrae tot die identifisering van, en indien nodig die gepaardgaande ondersoek tydens die Bestekopnamefase, van enige omgewingsimpakte wat met hierdie voorgestelde projek geassosieer mag word.

Ons moedig u bywoning en deelname by die Publiekevergadering aan en dank u byvoorbaat vir u aktiewe en betekenisvolle bydrae tot die OIS-proses.

Vriendelike groete,



Rebecca Thomas  
Omgewingskonsultant  
**SIVEST Omgewingsafdeling**

**Ingeslote Dokumente:** Konsep Agenda  
Registrasievorm

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

DEA Ref.      SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
 SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
 SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
 SENDAWO GRID: 14/12/16/3/3/2/894

**PUBLIC MEETING**  
**Tuesday, 15 March 2016 at 18h00**

**PURPOSE OF THE MEETING**

- provide an overview of the proposed project;
- provide you with the opportunity to raise any comments and/or concerns regarding this proposed project;
- provide feedback on the environmental findings; and
- record your comments and/or concerns raised at the PM.

**DRAFT AGENDA**

**Facilitator:** Nicolene Venter, Zitholele

WELCOME, INTRODUCTION & APOLOGIES	Nicolene Venter Zitholele
PURPOSE AND PROCESS OF THE MEETING	Nicolene Venter Zitholele
BACKGROUND TO THE PROPOSED PROJECT	Nicolene Venter Zitholele
ENVIRONMENTAL ASPECTS AND FINDINGS	Nicolene Venter Zitholele
PUBLIC PARTICIPATION PROCESS	Nicolene Venter Zitholele
DISCUSSION SESSION	All
WAY FORWARD & CLOSURE	Nicolene Venter Zitholele

**OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE  
VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV)  
SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400KV KRAGLYN NABY VRYBURG,  
NOORDWES PROVINSIE**

**DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894**

**PUBLIEKEVERGADERING**

**Dinsdag 15 Maart 2016 om 18h00**

**DOEL VAN DIE VERGADERING**

- Oorsig aan te bied rakende die voorgestelde projek;
- Geleentheid te bied om enige kommentaar en/of kwellinge wat u rakende die voorgestelde projek mag hê te opper;
- Terugvoer te gee rakende die omgewingsbevindinge; en
- Notule te neem van alle kommentaar en/of kwellinge geopper tydens die Publiekevergadering

**KONSEP AGENDA**

**Fasiliteerder:** Nicolene Venter, Zitholele

VERWELKOMING, BEKENDSTELLING & VERSKONINGS	Nicolene Venter Zitholele
DOEL EN VERLOOP VAN VERGADERING	Nicolene Venter Zitholele
AGTERGROND TOT DIE VOORGESTELDE PROJEK	Nicolene Venter Zitholele
OMGEWINGSASPEKTE EN -BEVINDINGE	Nicolene Venter Zitholele
OPENBARE DEELNAME PROSES	Nicolene Venter Zitholele
BESPREKINGSGELEENTHEID	Almal
PROSES VORENTOE & AFSLUITING	Nicolene Venter Zitholele

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

DEA Ref.            SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
 SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
 SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
 SENDAWO GRID: 14/12/16/3/3/2/894

**REGISTRATION FORM**

**PUBLIC MEETING**

**Tuesday, 15 March 2016 at 18h00**

Please **complete** this form and return it to the Public Participation Office at the following address **on or before Friday, 11 March 2016**.

**SiVEST Environmental Division**    51 Wessel Road            Phone    +27 11 798 0600  
**Attention:**                            PO Box 2921                Fax        +27 11 803 7272  
 Nicolene Venter or Lynsey Rimbault   Rivonia 2128                E-mail    nicolenev@zitholele.co.za / lynseyr@sivest.co.za  
 South Africa                            Website    www.sivest.co.za

<b>TITLE</b> (Prof/Mr/Mrs)		<b>FIRST NAME</b>	
<b>SURNAME</b>			
<b>CAPACITY</b> (e.g. Secretary/Director)			
<b>ORGANISATION</b>			
<b>POSTAL ADDRESS</b>		<b>POSTAL CODE</b>	
<b>TEL NO:</b> (    )		<b>CELL NO:</b>	
<b>FAX NO:</b> (    )		<b>E-MAIL ADDRESS:</b>	

Please indicate your choice by ***circling*** the appropriate block

Will you attend the Public Meeting?	<b>YES</b>	<b>NO</b>
If not able to attend would like to receive a copy of the draft Minutes?	<b>YES</b>	<b>NO</b>



**OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE**

DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
 SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
 SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
 SENDAWO GRID: 14/12/16/3/3/2/894

**REGISTRASIEVORM  
 PUBLIEKEVERGADERING  
 Dinsdag 15 Maart 2016 om 18h00**

Voloit asseblief die vorm en stuur terug aan die Openbare Deelname Kantoor by ondergenoemde adres voor of op **Vrydag, 11 Maart 2016.**

**SiVEST Environmental Division** Wesselstraat 51 Foon +27 11 798 0600  
**Aandag:** Posbus 2921 Faks +27 11 803 7272  
 Nicolene Venter of Lynsey Rimbault Rivonia 2128 E-pos nicolenev@zitholele.co.za / lynseyr@sivest.co.za  
 South Africa Website www.sivest.co.za

TITEL (Prof/Mnr/Mev)		NOEMNAAM	
VAN			
POSBENAMING (bv Sekretaresswe/Direkteur)			
DEPARTEMENT / ORGANISASIE			
POSADRES			
		POSKODE	
TEL. NO.:			
FAKS NO.:			
SELFOON NO.:			
E-POS ADRES			
<b>Omkring asseblief die toepaslike antwoord</b>			
Gaan u die Publiekevergadering bywoon?	YES	NO	
Indien nie, verlang u 'n kopie van die konsep Notule?	YES	NO	

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE SENDAWO 1, 2, AND 3 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

DEA Ref.      SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894

**FOCUS GROUP MEETING**  
**Tuesday, 15 March 2016 at 14h00**

**PURPOSE OF THE MEETING**

- provide feedback on the impact phase environmental findings;
- provide the opportunity to raise any questions for clarifications regarding the environmental findings;
- provide the opportunity to raise any comments and/or concerns regarding this proposed project; and
- record your comments and/or concerns raised at the FGM.

**DRAFT AGENDA**

**Facilitator:** Nicolene Venter, Zitholele

WELCOME, INTRODUCTION & APOLOGIES	Nicolene Venter Zitholele
PURPOSE AND PROCESS OF THE MEETING	Nicolene Venter Zitholele
BACKGROUND TO THE PROPOSED PROJECT	Stefan Jacobs SiVEST
ENVIRONMENTAL ASPECTS AND FINDINGS	Stefan Jacobs SiVEST
PUBLIC PARTICIPATION PROCESS	Stephan Jacobs SiVEST
DISCUSSION SESSION	All
WAY FORWARD & CLOSURE	Nicolene Venter Zitholele

Your reference

Our reference 13303

Date 9 March 2016

Dear Stakeholder,

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE SENDAWO 1, 2, AND 3 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

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**SENDAWO GRID: 14/12/16/3/3/2/894**

• **INVITATION TO FOCUS GROUP MEETING**

This letter serves to cordially invite you to attend a Focus Group Meeting (FGM) that will be held on:

**DATE:** Tuesday, 15 March 2016

**TIME:** 14h00

**VENUE:** Lavender Lodge, 2 Molopo Road, Vryburg

This FGM is part of the Environmental Impact Assessment (EIA) processes being undertaken by SiVEST for the above mentioned projects.

As stakeholder we would value your attendance at the FGM. The purpose of this FGM is to:

- provide feedback on the impact phase environmental findings;
- provide the opportunity to raise any questions for clarifications regarding the environmental findings;
- provide the opportunity to raise any comments and/or concerns regarding this proposed project; and
- record your comments and/or concerns raised at the FGM.

To ensure that sufficient seating is provided at the venue, we kindly request that you complete the attached Registration Form and return it to the Public Participation team on or before Friday, 11 March 2016.

Please also note that a **Public Meeting** is being held on the evening of **Tuesday, 15 March 2016** at Huhudi Community Hall, at Mosiapo St and Voortrekker St, Vryburg at 18h00.

Please feel free to pass this invitation to any other relevant officials from your Department as you deem necessary. We are looking forward to your attendance and meaningful contributions.

Yours sincerely,



Rebecca Thomas  
Environmental Practitioner

**SiVEST Environmental Division**

**Documents attached:** Draft Agenda  
Registration Form

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL  
MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF  
THE SENDAWO 1, 2, AND 3 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY  
FACILITIES AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR  
VRYBURG, NORTH WEST PROVINCE**

DEA Ref.      SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
                  SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
                  SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
                  SENDAWO GRID: 14/12/16/3/3/2/894

**REGISTRATION FORM  
 FOCUS GROUP MEETING  
 Tuesday, 15 March 2016 at 14h00**

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**SiVEST Environmental Division**      51 Wessel Road      Phone      +27 11 798 0600  
**Attention:**      PO Box 2921      Fax      +27 11 803 7272  
 Nicolene Venter or Lynsey Rimbault      Rivonia 2128      E-mail      nicolenev@zitholele.co.za / lynseyr@sivest.co.za  
                  South Africa      Website      www.sivest.co.za

<b>TITLE</b> (Prof/Mr/Mrs)		<b>FIRST NAME</b>	
<b>SURNAME</b>			
<b>CAPACITY</b> (e.g. Secretary/Director)			
<b>ORGANISATION</b>			
<b>POSTAL ADDRESS</b>		<b>POSTAL CODE</b>	
<b>TEL NO:</b> (      )		<b>CELL NO:</b>	
<b>FAX NO:</b> (      )		<b>E-MAIL ADDRESS:</b>	
<b>Please indicate your choice by <i>circling</i> the appropriate block</b>			
Will you attend the Focus Group Meeting?	<b>YES</b>	<b>NO</b>	
If not able to attend would like to receive a copy of the draft Minutes?	<b>YES</b>	<b>NO</b>	

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE, NEAR VRYBURG, NORTH WEST PROVINCE**

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SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894

**FOCUS GROUP MEETING**  
**Tuesday, 15 March 2016 at 11h00**

**PURPOSE OF THE MEETING**

- provide feedback on the environmental findings;
- provide the opportunity to raise any questions for clarifications regarding the environmental findings;
- provide the opportunity to raise any comments and/or concerns regarding this proposed project; and
- record your comments and/or concerns raised at the FGM.

**DRAFT AGENDA**

**Facilitator:** Nicolene Venter, Zitholele

WELCOME, INTRODUCTION & APOLOGIES	Nicolene Venter Zitholele
PURPOSE AND PROCESS OF THE MEETING	Nicolene Venter Zitholele
BACKGROUND TO THE PROPOSED PROJECT	Nicolene Venter Zitholele
ENVIRONMENTAL ASPECTS AND FINDINGS	Nicolene Venter Zitholele
PUBLIC PARTICIPATION PROCESS	Nicolene Venter Zitholele
DISCUSSION SESSION	All
WAY FORWARD & CLOSURE	Nicolene Venter Zitholele

**OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE  
VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV)  
SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400KV KRAGLYN NABY VRYBURG,  
NOORDWES PROVINSIE**

**DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894**

**FOKUSGROEPVERGADERING  
Dinsdag 15 Maart 2016 om 11h00**

**DOEL VAN DIE VERGADERING**

- Terugvoer te bied oor die omgewingsbevindinge;
- aan u die geleentheid te bied om vrae te vrae ter verduideliking betreffende die omgewingsbevindinge en/of enige ander aangeleentheid wat u wil oopper; en
- u kommentaar en/of knelpunte wat by die FGV geopper word, aan te teken.

**KONSEP AGENDA**

**Fasiliteerder:** Nicolene Venter, Zitholele

VERWELKOMING, BEKENDSTELLING & VERSKONINGS	Nicolene Venter Zitholele
DOEL EN VERLOOP VAN VERGADERING	Nicolene Venter Zitholele
AGTERGROND TOT DIE VOORGESTELDE PROJEK	Nicolene Venter Zitholele
OMGEWINGSASPEKTE EN -BEVINDINGE	Nicolene Venter Zitholele
OPENBARE DEELNAME PROSES	Nicolene Venter Zitholele
BESPREKINGSGELEENTHEID	Almal
PROSES VORENTOE & AFSLUITING	Nicolene Venter Zitholele

Your reference:

Our reference: 13303

Date: 9 March 2016

Dear Stakeholder,

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE, NEAR VRYBURG, NORTH WEST PROVINCE**

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• **INVITATION TO FOCUS GROUP MEETING**

This letter serves to cordially invite you to attend a Focus Group Meeting (FGM) that will be held on:

**DATE:** Tuesday, 15 March 2016  
**TIME:** 11h00  
**VENUE:** Lavender Lodge, 2 Molopo Road, Vryburg

This FGM is part of the Environmental Impact Assessment (EIA) process being undertaken by SiVEST for the above mentioned project.

As stakeholder we would value your attendance at the FGM. The purpose of this FGM is to:

- provide feedback on the environmental findings;
- provide the opportunity to raise any questions for clarifications regarding the environmental findings;
- provide the opportunity to raise any comments and/or concerns regarding this proposed project; and
- record your comments and/or concerns raised at the FGM.

To ensure that sufficient seating is provided at the venue, we kindly request that you complete the attached Registration Form and return it to the Public Participation team on or before Friday 11 March 2016.

Please also note that a **Public Meeting** is being held on the evening of **Tuesday, 15 March 2016** at Huhudi Community Hall, at Mosiapoa St and Voortrekker St, Vryburg at 18h00.

We are looking forward to your attendance and meaningful contributions.

Yours sincerely,



Rebecca Thomas  
Environmental Practitioner  
**SiVEST Environmental Division**

**Documents attached:** Draft Agenda  
Registration Form



U verwysing

Ons verwysing 13303

Datum 9 Maart 2016

Geagte Belanghebbende,

**OMGEWINGSIMPAAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE**

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**SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893**  
**SENDAWO GRID: 14/12/16/3/3/2/894**

• **UITNODIGING NA FOKUSGROEPVERGADERING**

Die doel van hierdie brief is om u vriendelik uit te nooi om 'n Fokusgroepvergadering (FGV) by te woon wat gehou sal word op:

**DATUM:** Dinsdag 15 Maart 2016  
**TYD:** 11h00  
**PLEK:** Lavender Lodge, 2 Molopo Road, Vryburg

Hierdie FGV is deel van die Omgewingsimpakevalueringproses (OIE-proses) wat SiVEST vir die bogenoemde projek onderneem.

As belanghebbende sal ons u bywoning van die FGV op prys stel. Die doel van hierdie FGV is om:

- Terugvoer te bied oor die omgewingsbevindinge;
- aan u die geleentheid te bied om vrae te vra ter verduideliking betreffende die omgewingsbevindinge en/of enige ander aangeleentheid wat u wil opper; en
- u kommentaar en/of knelpunte wat by die FGV geopper word, aan te teken.

Om te verseker dat genoegsame sitplek by die lokaal beskikbaar is, versoek ons u vriendelik om die aangehegte Registrasievorm in te vul en dit voor of op Vrydag, 11 Maart 2016 aan die Openbare Deelnamespan terug te stuur.

Neem asseblief ook kennis dat 'n **Openbare Vergadering** vanaf 18h00 op die aand van **Dinsdag, 15 Maart 2016** in die Huhudi Community Hall, Mosiapoa St en Voortrekker St, Vryburg, gehou sal word.

Ons sien uit na u bywoning en betekenisvolle bydraes.

Vriendelike groete,



Rebecca Thomas  
Omgewingskonsultant  
**SiVEST Omgewingsafdeling**

**Aangehegte dokumente:** Konsep sakelys  
FGV Registrasievorm

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE, NEAR VRYBURG, NORTH WEST PROVINCE**

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**REGISTRATION FORM  
 FOCUS GROUP MEETING  
 Tuesday, 15 March 2016 at 11h00**

Please **complete** this form and return it to the Public Participation Office at the following address **on or before Friday 11 March 2016**.

**SiVEST Environmental Division**      51 Wessel Road      Phone      +27 11 798 0600  
**Attention:**      PO Box 2921      Fax      +27 11 803 7272  
 Nicolene Venter or Lynsey Rimbault      Rivonia 2128      E-mail      nicolenev@zitholele.co.za / lynseyr@sivest.co.za  
 South Africa      Website      www.sivest.co.za

<b>TITLE</b> (Prof/Mr/Mrs)		<b>FIRST NAME</b>	
<b>SURNAME</b>			
<b>CAPACITY</b> (e.g. Secretary/Director)			
<b>ORGANISATION</b>			
<b>POSTAL ADDRESS</b>		<b>POSTAL CODE</b>	
<b>TEL NO:</b> (    )		<b>CELL NO:</b>	
<b>FAX NO:</b> (    )		<b>E-MAIL ADDRESS:</b>	
<b>Please indicate your choice by <i>circling</i> the appropriate block</b>			
Will you attend the Focus Group Meeting?	<b>YES</b>	<b>NO</b>	
If not able to attend would like to receive a copy of the draft Minutes?	<b>YES</b>	<b>NO</b>	

**OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR  
DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW  
FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN  
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DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
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SENDAWO GRID: 14/12/16/3/3/2/894

**REGISTRASIEVORM  
FOKUSGROEPVERGADERING  
Dinsdag 15 Maart 2016 om 11h00**

Vlooiit asseblief die vorm en stuur terug aan die Openbare Deelname Kantoor by ondergenoemde adres voor of op **Vrydag 11 Maart 2016.**

<b>SiVEST Environmental Division</b>	Wesselstraat 51	Foon	+27 11 798 0600
<b>Aandag:</b>	Posbus 2921	Faks	+27 11 803 7272
Nicolene Venter / Lynsey Rimbault	Rivonia 2128	E-pos	nicolenev@zitholele.co.za / lynseyr@sivest.co.za
	South Africa	Website	www.sivest.co.za

<b>TITEL</b> (Prof/Mnr/Mev)		<b>NOEMNAAM</b>	
<b>VAN</b>			
<b>POSBENAMING</b> (bv Sekretaresswe/Direkteur)			
<b>DEPARTEMENT / ORGANISASIE</b>			
<b>POSADRES</b>			<b>POSKODE</b>
<b>TEL. NO.:</b>			
<b>FAKS NO.:</b>			
<b>SELFOON NO.:</b>			
<b>E-POS ADRES</b>			
<b>Omkring asseblief die toepaslike antwoord</b>			
Gaan u die Fokusgroepvergadering bywoon?	<b>YES</b>	<b>NO</b>	
Indien nie, verlang u 'n kopie van die konsep Notule?	<b>YES</b>	<b>NO</b>	

## Hlengiwe Ntuli

---

**From:** Hlengiwe Ntuli  
**Sent:** 08 March 2016 08:47 AM  
**Cc:** Rebecca Thomas; Lynsey Rimbault; 'nicolenev@zitholele.co.za'  
**Subject:** Corrected Sendawo Public Meeting Invitation  
**Attachments:** 13303 Sendawo PM Agenda Rev1\_7March2016 RT\_Combined.pdf; 13303 Sendawo PM Registration Form rev1\_7March2016 RT\_Combined.pdf; 13303 Sendawo PV PM InviteLetter Rev1\_7March2016 RT\_Combined.pdf

<b>Tracking:</b>	<b>Recipient</b>	<b>Delivery</b>	<b>Read</b>
	Rebecca Thomas	Delivered: 2016/03/08 08:47 AM	Read: 2016/03/08 09:34 AM
	Lynsey Rimbault	Delivered: 2016/03/08 08:47 AM	Read: 2016/03/08 08:47 AM
	'nicolenev@zitholele.co.za'		
	'Neil Faber'		
	'Theo Geldenhuys'		
	'Kobus Visser'		
	'Simpfiwe Masilela'		
	'Johanna Morobane'		
	'Simon Gear'		
	'Godfrey Samore'		
	'Mashudu Marubini'		
	'Anneliza Collett'		
	'Thoko Buthelezi'		
	'Pheladi Masipa'		
	'Lerato April'		
	'Seoka Lekota'		
	'Mmatlala Rabothata'		
	'Pieter Swart'		
	'Doris Maumela'		
	'Keobome Kehositse'		
	'Zebo Tshetlho'		
	'Ogone Mosiapo'		
	'Choanyetso Tladinyane'		
	'Victor Tlhabanelo'		
	'Adele Oberholzer'		
	'John Geeringh'		
	'Lourens Leeuwner'		
	'Mike Levington'		
	'Marlaine Andersen'		
	'Mpho Talane'		
	'Modisenyane Segapo'		
	'A Appolus'		
	'Mmusi Kgomotso'		
	'Mboyisi Nombulelo'		
	'Alfred Mafune'		

Recipient	Delivery	Read
'Matshediso Mahlaku'		
'Tebogo Sethosa'		
'Bonolo Mohlakoana'		
'SM Matsheka'		
'Lizell Stroh'		
'Harry Roberts'		
'Nicolene Abrahams'		
'Shaun Dyers'		
'Johan Koegelenberg'		
'Berlijn'		
'Candice Pillay'		
'Claire Phutieagae-Top'		
'Eunice Buthelezi'		
'Chris Schutte'		
'Sam Fiff'		
'Suzanne Erasmus'		
'Morgan Griffiths'		

Please note that there was an error in the invitation that was previously sent, the project is located near Vryburg in the North West Province.

\*\*\*\*\* Please note that this email was sent from a NO REPLY email address. Please do not reply to this address as it is an unmonitored email account. \*\*\*\*\* Dear Interested and Affected Party,

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

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                          SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
                          SENDAWO GRID: 14/12/16/3/3/2/894

- INVITATION TO PUBLIC MEETING**

We would like to take this opportunity to invite you to attend the Public Meeting that will be held for the above-mentioned proposed project on:

DATE	TIMES	VENUES
Tuesday, 15 March 2016	Starts at: 18h00 Registration from: 17h45	Huhudi Community Hall, at Mosiapoa St and Voortrekker St, Vryburg

To ensure that sufficient seating is provided at the venue, we kindly request that you complete the attached Registration Form and return it to the Public Participation team on or before Friday, 11 March 2016.

The purpose of the Public Meeting is outlined in the attached draft agenda.

Your input into this EIA process is highly valued as it will help identify, and if required address, any environmental impacts that may be associated with this proposed project during the Scoping phase.

We encourage you to attend and participate in the Public Meeting and thank you in anticipation for your active and meaningful contribution to the EIA process.

\*\*\*\*\*

Beste Belangstellende en/of Geaffekteerde Party,

OMGEWINGSIMPAAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE

DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894

- UITNODIGING NA PUBLIEKEVERGADERING

Ons maak graag van hierdie geleentheid gebruik om u uit te nooi om die Publiekevergadering wat vir die bogenoemde voorgestelde projek gehou word op:

DATUM	TYD	PLEK
Dinsdag 15 Maart 2016	Begin om: 18h00 Registrasie vanaf: 17h45	Huhudi Gemeenskapsaal, h/v Mosiapo en Voortrekkerstrate, Vryburg

Om te verseker dat ons voorsiening maak vir alle teenwoordiges, versoek ons u vriendelik om die ingeslote Registrasievorm te voltooi en aan die Openbare Deelname span te stuur voor of op Vrydag, 11 Maart 2016.

Die doel van die Publiekevergadering is vervat in die ingeslote konsep agenda.

U insette in die OIS-proses word hoog op prys gestel aangesien dit sal bydrae tot die identifisering van, en indien nodig die gepaardgaande ondersoek tydens die Bestekopnamefase, van enige omgewingsimpakte wat met hierdie voorgestelde projek geassosieer mag word.

Ons moedig u bywoning en deelname by die Publiekevergadering aan en dank u byvoorbaat vir u aktiewe en betekenisvolle bydrae tot die OIS-proses.

Kind Regards,

REBECCA THOMAS (B.Sc Env. Sc.; PDM Business Management) Senior Environmental Scientist SiVEST Environmental Division

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direct +27 11 798 0634 tel +27 11 798 0600 fax +27 11 803 7272 cell +27 82 302 9010  
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email [shaunt@sivest.co.za](mailto:shaunt@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

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Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

## Hlengiwe Ntuli

---

**From:** Hlengiwe Ntuli  
**Sent:** 07 March 2016 06:03 PM  
**To:** Rebecca Thomas; Lynsey Rimbault; 'nicolenev@zitholele.co.za'  
**Cc:** 'Kobus Visser'; 'Simphiwe Masilela'; 'Johanna Morobane'; 'Simon Gear'; 'Godfrey Samore'; 'Mashudu Marubini'; 'Anneliza Collett'; 'Thoko Buthelezi'; 'Pheladi Masipa'; 'Lerato April'; 'Seoka Lekota'; 'Mmatlala Rabothata'; 'Pieter Swart'; 'Doris Maumela'; 'Keobome Kehositse'; 'Zebo Tshetlho'; 'Ogone Mosiapo'; 'Choanyetso Tladinyane'; 'Victor Tlhabanelo'; 'John Geeringh'; 'Lourens Leeuwner'; 'Mpho Talane'; 'Modisenyane Segapo'; 'A Appolus'; 'Mmusi Kgomotso'; 'Mboyisi Nombulelo'; 'Alfred Mafune'; 'Matshediso Mahlaku'; 'Tebogo Sethosa'; 'Bonolo Mohlakoana'; 'SM Matsheka'; 'Lizell Stroh'; 'Harry Roberts'; 'Nicolene Abrahams'; 'Shaun Dyers'; 'Johan Koegelenberg'; 'Eunice Buthelezi'; 'Chris Schutte'; 'Sam Fiff'; 'Suzanne Erasmus'; 'Morgan Griffiths'  
**Subject:** Sendawo PV Focus Group Meeting Invitation  
**Attachments:** 13303 Sendawo Authority FGM Registration Form\_Rev1\_7March2016 LR.PDF; 13303 Sendawo Authority FGM Agenda\_Rev 1\_7March2016 RT.PDF

### Tracking:

Recipient	Delivery	Read
Rebecca Thomas	Delivered: 2016/03/07 06:03 PM	Read: 2016/03/08 09:32 AM
Lynsey Rimbault	Delivered: 2016/03/07 06:03 PM	Read: 2016/03/08 07:50 AM
'nicolenev@zitholele.co.za'		
'Kobus Visser'		
'Simphiwe Masilela'		
'Johanna Morobane'		
'Simon Gear'		
'Godfrey Samore'		
'Mashudu Marubini'		
'Anneliza Collett'		
'Thoko Buthelezi'		
'Pheladi Masipa'		
'Lerato April'		
'Seoka Lekota'		
'Mmatlala Rabothata'		
'Pieter Swart'		
'Doris Maumela'		
'Keobome Kehositse'		
'Zebo Tshetlho'		
'Ogone Mosiapo'		
'Choanyetso Tladinyane'		
'Victor Tlhabanelo'		
'John Geeringh'		
'Lourens Leeuwner'		
'Mpho Talane'		
'Modisenyane Segapo'		
'A Appolus'		
'Mmusi Kgomotso'		



Recipient	Delivery	Read
'Mboyisi Nombulelo'		
'Alfred Mafune'		
'Matshediso Mahlaku'		
'Tebogo Sethosa'		
'Bonolo Mohlakoana'		
'SM Matsheka'		
'Lizell Stroh'		
'Harry Roberts'		
'Nicolene Abrahams'		
'Shaun Dyers'		
'Johan Koegelenberg'		
'Eunice Buthelezi'		
'Chris Schutte'		
'Sam Fiff'		
'Suzanne Erasmus'		
'Morgan Griffiths'		

\*\*\*\*\* Please note that this email was sent from a NO REPLY email address. Please do not reply to this address as it is an unmonitored email account. \*\*\*\*\*

Dear Stakeholder,

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE SENDAWO 1, 2, AND 3 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

DEA Ref.            SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
                          SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
                          SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
                          SENDAWO GRID: 14/12/16/3/3/2/894

- **INVITATION TO FOCUS GROUP MEETING**

This letter serves to cordially invite you to attend a Focus Group Meeting (FGM) that will be held on:

DATE: Tuesday, 15 March 2016  
 TIME: 14h00  
 VENUE: 41 on Market Lodge, 41 Market Street, Vryburg

This FGM is part of the Environmental Impact Assessment (EIA) processes being undertaken by SiVEST for the above mentioned projects.

As stakeholder we would value your attendance at the FGM. The purpose of this FGM is to:

- ☐ provide feedback on the impact phase environmental findings;
- ☐ provide the opportunity to raise any questions for clarifications regarding the environmental findings;
- ☐ provide the opportunity to raise any comments and/or concerns regarding this proposed project; and
- ☐ record your comments and/or concerns raised at the FGM.

To ensure that sufficient seating is provided at the venue, we kindly request that you complete the attached Registration Form and return it to the Public Participation team on or before Friday, 11 March 2016.

Please also note that a Public Meeting is being held on the evening of Tuesday, 15 March 2016 at Huhudi Community Hall, at Mosiapo St and Voortrekker St, Vryburg at 18h00.

Please feel free to pass this invitation to any other relevant officials from your Department as you deem necessary. We are looking forward to your attendance and meaningful contributions.

REBECCA THOMAS (B.Sc Env. Sc.; PDM Business Management) Senior Environmental Scientist SiVEST Environmental Division

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email shaunt@sivest.co.za website www.sivest.co.za

Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

## Hlengiwe Ntuli

---

**From:** Hlengiwe Ntuli  
**Sent:** 08 March 2016 08:52 AM  
**Cc:** Rebecca Thomas; Lynsey Rimbault; nicolenev@zitholele.co.za  
**Subject:** Corrected Sendawo FGM Landowner Invitation  
**Attachments:** 13303 Sendawo LO FGM Agenda Rev 1\_7March2016 RT\_Combined.pdf; 13303 Sendawo LO FGM InviteLetter Rev1\_7March2016 RT\_combined.pdf; 13303 Sendawo LO FGM Registration Form Rev1\_7March2016 RT\_Combined.pdf

### Tracking:

#### Recipient

#### Read

Rebecca Thomas

Read: 2016/03/08 09:34 AM

Lynsey Rimbault

Read: 2016/03/08 08:59 AM

nicolenev@zitholele.co.za

'Neil Faber'

'Theo Geldenhuys'

'Adele Oberholzer'

Please note that there was an error in the invitation that was previously sent, the project is located near Vryburg in the North West Province.

\*\*\*\*\* Please note that this email was sent from a NO REPLY email address. Please do not reply to this address as it is an unmonitored email account. \*\*\*\*\* Dear Stakeholder,

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE, NEAR VRYBURG, NORTH WEST PROVINCE

DEA Ref. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894

- INVITATION TO FOCUS GROUP MEETING

This letter serves to cordially invite you to attend a Focus Group Meeting (FGM) that will be held on:

DATE: Tuesday, 15 March 2016

TIME: 11h00

VENUE: 41 on Market Lodge, 41 Market Street, Vryburg

This FGM is part of the Environmental Impact Assessment (EIA) process being undertaken by SiVEST for the above mentioned project.

As stakeholder we would value your attendance at the FGM. The purpose of this FGM is to:

- ☐ provide feedback on the environmental findings;
- ☐ provide the opportunity to raise any questions for clarifications regarding the environmental findings;
- ☐ provide the opportunity to raise any comments and/or concerns regarding this proposed project; and
- ☐ record your comments and/or concerns raised at the FGM.

To ensure that sufficient seating is provided at the venue, we kindly request that you complete the attached Registration Form and return it to the Public Participation team on or before Friday 11 March 2016.

Please also note that a Public Meeting is being held on the evening of Tuesday, 15 March 2016 at Huhudi Community Hall, at Mosiapoa St and Voortrekker St, Vryburg at 18h00.

We are looking forward to your attendance and meaningful contributions.

\*\*\*\*\*

Geagte Belanghebbende,

OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400KV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE

DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894

• UITNODIGING NA FOKUSGROEPVERGADERING

Die doel van hierdie brief is om u vriendelik uit te nooi om 'n Fokusgroepvergadering (FGV) by te woon wat gehou sal word op:

DATUM: Dinsdag 15 Maart 2016  
TYD: 11h00  
PLEK: 41 on Market Lodge, 41 Market Straat, Vryburg

Hierdie FGV is deel van die Omgewingsimpakevalueringproses (OIE-proses) wat SiVEST vir die bogenoemde projek onderneem.

As belanghebbende sal ons u bywoning van die FGV op prys stel. Die doel van hierdie FGV is om:

- Terugvoer te bied oor die omgewingsbevindinge;
- aan u die geleentheid te bied om vrae te vra ter verduideliking betreffende die omgewingsbevindinge en/of enige ander aangeleentheid wat u wil opper; en
- u kommentaar en/of knelpunte wat by die FGV geopper word, aan te teken.

Om te verseker dat genoegsame sitplek by die lokaal beskikbaar is, versoek ons u vriendelik om die aangehegte Registrasievorm in te vul en dit voor of op Vryday, 11 Maart 2016 aan die Openbare Deelnamespan terug te stuur.

Neem asseblief ook kennis dat 'n Openbare Vergadering vanaf 18h00 op die aand van Dinsdag, 15 Maart 2016 in die Huhudi Community Hall, Mosiapoa St en Voortrekker St, Vryburg, gehou sal word.

Ons sien uit na u bywoning en betekenisvolle bydraes.

Kind Regards,

REBECCA THOMAS (B.Sc Env. Sc.; PDM Business Management) Senior Environmental Scientist SiVEST Environmental Division

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email [shaunt@sivest.co.za](mailto:shaunt@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

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## sivest\_PPP

---

**From:** sivest\_PPP  
**Sent:** 04 May 2016 03:49 PM  
**Cc:** Lynsey Rimbault; 'nicolenev@zitholele.co.za'; Stephan Jacobs  
**Subject:** Sendawo Solar PV Energy Facilities and Power Line: FGM minutes  
**Attachments:** 13303 Sendawo Authority FGM Draft Minutes Rev1 4May2016 LR - with append....pdf

<b>Tracking:</b>	<b>Recipient</b>	<b>Delivery</b>	<b>Read</b>
	Lynsey Rimbault 'nicolenev@zitholele.co.za'	Delivered: 2016/05/04 03:49 PM	Read: 2016/05/04 03:50 PM
	Stephan Jacobs 'Heleen van den Heever' 'Thulani Koom' 'Mpho Talane' 'Siphelele Dunga' 'George Ramogogane' 'Arnold Manamela' 'Jaco Venter' 'Irene Bezuidenhout' 'Daniel Lowings' 'Eunice Buthelezi'	Delivered: 2016/05/04 03:49 PM	Read: 2016/05/05 06:34 AM

\*\*\*\*\* Please note that this email was sent from a NO REPLY email address. Please do not reply to this address as it is an unmonitored email account.\*\*\*\*\*

Dear Stakeholder,

Please see attached the minutes of the focus group meeting for the Environmental Impact Assessment for the Sendawo Solar PV Energy Facilities and Power Line, which was held on the 15th of March 2016. Please provide comments on or before the 11th of May 2016.

Kind Regards

Lynsey Rimbault (B.Sc.(Hons) Geography; M.Sc. Biodiversity, Conservation and Management) Environmental Consultant SiVEST Environmental

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Direct +27 11 798 0631 Tel +27 11 798 0600 fax +27 11 803 7272  
email [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

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## sivest\_PPP

---

**From:** sivest\_PPP  
**Sent:** 04 May 2016 03:54 PM  
**Cc:** Lynsey Rimbault; 'nicolenev@zitholele.co.za'; Stephan Jacobs  
**Subject:** Sendawo Solar PV Energy Facilities and Power Line: Public meeting minutes  
**Attachments:** 13303 Sendawo PM Draft Minutes Rev 1 4May2016 LR - with appendices.pdf

<b>Tracking:</b>	<b>Recipient</b>	<b>Delivery</b>	<b>Read</b>
	Lynsey Rimbault 'nicolenev@zitholele.co.za'	Delivered: 2016/05/04 03:54 PM	Read: 2016/05/04 03:58 PM
	Stephan Jacobs 'Thulani Koom' 'Tshepo Selotlego' 'Tshepo Sojanja' 'Thabo Mosimanyane' 'Siphelele Dunga' 'Marcus Phaduli' 'Ohentse Ernest Lekgwathi' 'Lutendo Mphaphuli' 'Tshepo Mogapi' 'Irene Bezuidenhout' 'Gomotsegang Sojanja' 'Daniel Lowings' 'Benson T. Tshegetso' 'Charles Otletseng'	Delivered: 2016/05/04 03:54 PM	Read: 2016/05/05 06:34 AM

\*\*\*\*\* Please note that this email was sent from a NO REPLY email address. Please do not reply to this address as it is an unmonitored email account.\*\*\*\*\*

Dear Stakeholder,

Please see attached the minutes of the public meeting for the Environmental Impact Assessment for the Sendawo Solar PV Energy Facilities and Power Line, which was held on the 15th of March 2016. As discussed at the meeting, hard copies of the minutes will be sent to the Huhudi Public Library.

Kind Regards

Lynsey Rimbault (B.Sc.(Hons) Geography; M.Sc. Biodiversity, Conservation and Management) Environmental Consultant SIVEST Environmental

SIVEST is a Level 3 BBBEE Contributor

Direct +27 11 798 0631 Tel +27 11 798 0600 fax +27 11 803 7272  
email [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

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## **Appendix 5C: Proof of Advertisements**





**OMGEWINGSIMPAKEVALUERINGS (OIE's) VIR DIE BEOOGDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75 MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE EN DIE GEPAARDGAANDE SUBSTASIE EN 400 KV KRAGLYN NABY VRYBURG, NOORDWES-PROVINSIE**

Ingevolge die Nasionale Wet op Omgewingsbestuur, 1998 (Wet 107 van 1998) (NEMA), soos gewysig, en die Regulasies op Omgewingsimpakevaluerings (OIE-regulasies) ingevolge Staatskennisgewing R982, R983, R984 en R985 wat op 4 Desember 2014 ingevolge kennis hiermee dat BioTherm Energy (Edms.) Bpk. SiVEST SA (Edms.) Bpk. aangestel het as die onafhanklike omgewingsevalueringspraktisyn (OEP) ten einde die nodige OIE en openbare deelnameproses vir die bogenoemde voorgestelde projekte te onderneem:

**PROJEKBESKRYWING**

BioTherm stel die oprigting voor drie (3) Sendawo fotovoltaiiese (FV) sonkragaanlegte naby Vryburg, Noordwes-provinsie. Die beoogde ontwikkeling sal bestaan uit drie (3) FV-sonkragaanlegte van 75 MW elk wat as Sendawo 1, Sendawo 2 en Sendawo 3 sal bekendstaan. Daarbenewens beoog BioTherm ook die oprigting van 'n gepaardgaande substasie, naamlik die Sendawo Substasie, en 'n 400 kV kraglyn ten einde die beoogde ontwikkeling met die bestaande Mookodi Hooftransmissiesubstasie (HTS) te verbind. Die FV-kragaanlegte sal aan die hand van 132 kV kraglyne met die beoogde Sendawo Substasie verbind word. Die oorkoepelende doelwit van die projek is om elektrisiteit op te wek om in Eskom se nasionale kragnet in te voer.

Vier (4) omgewingsimpakevaluerings (OIE's) sal dus onderneem word; drie (3) vir die beoogde Sendawo FV-sonkragaanlegte (een vir elke FV-aanleg) en een (1) vir die beoogde Sendawo Substasie en 400 kV kraglyn. Hoewel elke FV-kragaanleg en die elektriese infrastruktuur apart geëvalueer sal word, word 'n enkele openbare deelnameproses vir al vier (4) die beoogde projekte onderneem.

**PROJEKLIIGING**

Die beoogde projekte is geleë in die Noordwes-provinsie, sowat 10 km suid van Vryburg. Dit is in die Naledi Plaaslike Munisipaliteit geleë, wat deel vorm van die Dr Ruth Segomotsi Mompati Distriksmunisipaliteit. Die projekte sluit die volgende plase in:

- Gedeelte 1 van die plaas Edinburgh No. 735
- Restant van die plaas Edinburgh No. 735
- Gedeelte 1 van die plaas Frankfort No. 672
- Gedeelte 1 van die plaas Rosendal No. 673
- Gedeelte 2 van die plaas Rosendal No. 673
- Restant van die plaas Rosendal No. 673
- Gedeelte 2 van die plaas Waterloo No. 730
- Gedeelte 3 van die plaas Waterloo No. 730
- Gedeelte 4 van die plaas Waterloo No. 730
- Gedeelte 5 van die plaas Waterloo No. 730
- Gedeelte 7 van die plaas Waterloo No. 730
- Gedeelte 10 van die plaas Waterloo No. 730
- Restant van die plaas Hartsboom No. 734
- Gedeelte 1 van die plaas Champions Kloof No. 731
- Gedeelte 2 van die plaas Champions Kloof No. 731
- Gedeelte 10 van die plaas Champions Kloof No. 731
- Restant van die plaas Brussels No. 736
- Die plaas Waterloo No. 992

**UITNODIGING OM KOMENTAAR TE LEWER OP DIE KONSEP BESTEKOPNAMEVERSLAE**

Die Konsep Bestekopnameverslae beskikbaar sal wees vir openbare kommentaar en oorsig vanaf Maandag 11 Januarie 2016 tot Dinsdag 9 Februarie 2016 (teen sluitingstyd). Sou u graag 'n elektroniese kopie van die Konsep Bestekopnameverslae op CD wil ontvang, kan u dit skriftelik by ons aanvra. Gedrukte eksemplare van die Konsep Bestekopnameverslae sal ook by die volgende openbare plek beskikbaar wees vir besigtiging:

PLEK	STRAATADRES	KANTOOR URE	KONTAKNO.
Vryburg Openbare Biblioteek	Stellastraat 63, Vryburg	Maandae- Vrydae 09h30 – 17h30	053 928 2270

Die Verslae is ook op SiVEST se webtuiste beskikbaar: <http://www.sivest.co.za/>, klik dan op die legger '13303 Sendawo PV Energy Development'.

**Ten einde as 'n Belangstellende en/of Geaffekteerde Party (B&GP) te registreer en/of om meer inligting te bekom**, moet u asseblief u naam, kontakbesonderhede en die belang wat u by die aansoek het binne 30 dae vanaf die datum van hierdie kennisgewing indien. Rig asseblief u **skriftelike** navrae aan die Omgewingskonsultante hieronder:

<b>Andrea Gibb of Lynsey Rimbault</b>	
SiVEST Environmental Posbus 2921 RIVONIA 2128	Tel: 011 798 0600 Faks: 011 803 7272 E-pos: <a href="mailto:andreg@sivest.co.za">andreg@sivest.co.za</a> of <a href="mailto:lynseyr@sivest.co.za">lynseyr@sivest.co.za</a> Webwerf: <a href="http://www.sivest.co.za">www.sivest.co.za</a>

**ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended and the Environmental Impact Assessment (EIA) Regulations, under Government Notices No R982, R983, R984 and R985 promulgated on 4 December 2014, notice is hereby given that BioTherm Energy (Pty) Ltd has appointed SiVEST SA (Pty) Ltd, as the independent environmental assessment practitioner (EAP), to undertake the required EIA and public participation processes for the above-mentioned proposed projects:

**PROJECT DESCRIPTION**

BioTherm are proposing to develop three (3) Sendawo solar photovoltaic (PV) energy facilities near Vryburg, North West Province. The proposed development will consist of three (3) 75MW solar PV energy facilities, namely Sendawo 1, Sendawo 2 and Sendawo 3. In addition, BioTherm are proposing to construct an associated substation, namely Sendawo substation, and a 400kV power line in order to connect the proposed development to the existing Mookodi Main Transmission Substation (MTS). The PV energy facilities will be connected to the proposed Sendawo substation by 132kV power lines. The overall objective of the project is to generate electricity to feed into the national Eskom grid.

Four (4) Environmental Impact Assessments (EIAs) will therefore be undertaken, three (3) for the proposed Sendawo solar PV energy facilities (one for each PV facility) and one (1) for the proposed Sendawo substation and 400kV power line. Although each PV energy facility and the electrical infrastructure will be assessed separately, a single public participation process is being undertaken for all four (4) proposed projects.

**PROJECT LOCATION**

The proposed project is located within the North West Province approximately 10km south of Vryburg. It falls within the Naledi Local Municipality that forms part of the Dr Ruth Segomotsi Mompati District Municipality. The project includes the following farms:

- Portion 1 of the farm Edinburgh No.
- Remainder of the farm Edinburgh No. 735
- Portion 1 of the farm Frankfort No. 672
- Portion 1 of the farm Rosendal No. 673
- Portion 2 of the farm Rosendal No. 673
- Remainder of the farm Rosendal No. 673
- Portion 2 of the farm Waterloo No. 730
- Portion 3 of the farm Waterloo No. 730
- Portion 4 of the farm Waterloo No. 730
- Portion 5 of the farm Waterloo No. 730
- Portion 7 of the farm Waterloo No. 730
- Portion 10 of the farm Waterloo No. 730
- Remainder of the farm Hartsboom No. 734
- Portion 1 of the farm Champions Kloof No. 731
- Portion 2 of the farm Champions Kloof No. 731
- Portion 10 of the farm Champions Kloof No. 731
- Remainder of the farm Brussels No. 736
- The farm Waterloo No. 992

**AVAILABILITY OF THE DRAFT SCOPING REPORTS FOR PUBLIC REVIEW**

The Draft Scoping Reports (DSRs) will be available for public comment and review as from Monday 11 January 2016 to Tuesday 9 February 2016 (end of business day). Should you wish to receive an electronic copy of the DSRs (CD) please forward your request in writing to us. Hard copies of the DSRs can be reviewed at the following public place:

VENUE	STREET ADDRESS	HOURS	CONTACT NO
Vryburg Public Library	63 Stella Street, Vryburg	Mondays- Fridays 09h30 – 17h30	053 928 2270

The reports are also available on SiVEST's website: <http://www.sivest.co.za/>, then browse to the folder '13303 Sendawo PV Energy Development'.

**To register as an Interested and / or Affected Party (I&AP) and / or to obtain additional information** please submit your name, contact details and the interest which you have in the application within 30 days from the date of this notice. Please direct enquiries, **in writing**, to the Environmental Consultants below:

<b>Andrea Gibb or Lynsey Rimbault</b>	
SiVEST Environmental P O Box 2921 RIVONIA 2128	Tel: (011) 798 0600 Fax: (011) 803 7272 E-mail: <a href="mailto:andreag@sivest.co.za">andreag@sivest.co.za</a> or <a href="mailto:lynseyr@sivest.co.za">lynseyr@sivest.co.za</a> Website: <a href="http://www.sivest.co.za">www.sivest.co.za</a>





## **Appendix 5D: Correspondence**





## Andrea Gibb

---

**From:** Chris Schutte (CEJ) <SchutCE5@telkom.co.za>  
**Sent:** Wednesday, January 06, 2016 11:24 AM  
**To:** Andrea Gibb  
**Subject:** CVR+0013-15 Sendawo Solar PV Developments

Good day

Hereby do we acknowledge your proposed project.

For future reference please quote CVR+0013-15.

Kind regards

Chris Schutte  
Mvelaphande Trading  
[SchutCE5@telkom.co.za](mailto:SchutCE5@telkom.co.za)  
051 401 6701 / 081 045 5686

~~~~~  
This e-mail is subject to the Telkom SA SOC Ltd electronic communication legal notice,  
available at : <http://www.telkom.co.za/TelkomEMailLegalNotice.PDF>  
~~~~~

## Andrea Gibb

---

**From:** John Geeringh <GeerinJH@eskom.co.za>  
**Sent:** Monday, January 11, 2016 2:22 PM  
**To:** Andrea Gibb  
**Subject:** Sendawo solar PV projects  
**Attachments:** Eskom requirements for work in or near Eskom servitudes SOLAR (3).doc;  
Renewable Energy Generation Plant Setbacks to Eskom Infrastructure - Signed.pdf

**Categories:** BioTherm

Please find attached Eskom requirements for renewable energy works at or near Eskom infrastructure.

Regards


John Geeringh (Pr Sci Nat)  
Senior Consultant Environmental Management

Eskom GC: Land Development  
Megawatt Park  
D1Y39  
P O Box 1091  
Johannesburg  
2000

Tel: 011 516 7233  
Fax: 086 661 4064  
Cell: 083 632 7663

I'm part of the 49Million initiative...  
<http://www.49Million.co.za>

NB: This Email and its contents are subject to the Eskom Holdings SOC Limited EMAIL LEGAL NOTICE which can be viewed at [http://www.eskom.co.za/Pages/Email\\_Legal\\_Spam\\_Disclaimer.aspx](http://www.eskom.co.za/Pages/Email_Legal_Spam_Disclaimer.aspx)

	<p style="text-align: center;"><b>SCOT</b></p>	<p style="text-align: center;"><b>Technology</b></p>
---	--	--

Title: **Renewable Energy Generation Plant Setbacks to Eskom Infrastructure** Unique Identifier: **240-65559775**

Alternative Reference Number: **N/A**

Area of Applicability: **Power Line Engineering**

Documentation Type: **Guideline**

Revision: **0**

Total Pages: **8**

Next Review Date: **N/A**

Disclosure Classification: **CONTROLLED DISCLOSURE**


**Compiled by**



**J W Chetty**  
**Mechanical Engineer**

Date: 20/02/2014

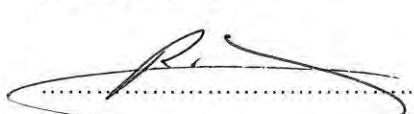
**Approved by**



**V Naidoo**  
**Chief Engineer (Lines)**

Date: 24/02/2014

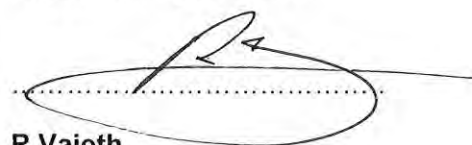
**Authorised by**



**R A Vajeth**  
**Acting Snr Manager (Lines)**

Date: 27/2/2014

**Supported by SCOT/SC**



**R Vajeth**  
**SCOT/SC/ Chairperson**

Date: 27/2/2014

PCM Reference: 240-65132732 **LINE ENGINEERING SERVICES**

SCOT Study Committee Number/Name : **OVERHEAD LINES**

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## EXECUTIVE SUMMARY

In recent decades, the use of wind turbines, concentrated solar plants and photovoltaic plants have been on the increase as it serves as an abundant source of energy. This document specifies setbacks for wind turbines and the reasons for these setbacks from infrastructure as well as setbacks for concentrated solar plants and photovoltaic plants. Setbacks for wind turbines employed in other countries were compared and a general setback to be used by Eskom was suggested for use with wind turbines and other renewable energy generation plants.

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## **1. INTRODUCTION**

During the last few decades, a large amount of wind turbines have been installed in wind farms to accommodate for the large demand of energy and depleting fossil fuels. Wind is one of the most abundant sources of renewable energy. Wind turbines harness the energy of this renewable resource for integration in electricity networks. The extraction of wind energy is its primary function and thus the aerodynamics of the wind turbine is important. There are many different types of wind turbines which will all exhibit different wind flow characteristics. The most common wind turbine used commercially is the Horizontal Axis Wind Turbine. Wind flow characteristics of this turbine are important to analyse as it may have an effect on surrounding infrastructure.

Wind turbines also cause large turbulence downwind that may affect existing infrastructure. Debris or parts of the turbine blade, in the case of a failure, may be tossed behind the turbine and may lead to damage of infrastructure in the wake path.

This document outlines the minimum distances that need to be introduced between a wind turbine and Eskom infrastructure to ensure that debris and / or turbulence would not negatively impact on the infrastructure.

Safety distances of wind turbines from other structures as implemented by other countries were also considered and the reasons for their selection were noted.

Concentrated solar plants and photovoltaic plants setbacks away from substations were also to be considered to prevent restricting possible power line access routes to the substation.

## **2. SUPPORTING CLAUSES**

### **2.1 SCOPE**

This document provides guidance on the safe distance that a wind turbine should be located from any Eskom power line or substation. The document specifies setback distances for transmission lines (220 kV to 765 kV), distribution lines (6.6 kV to 132 kV) and all Eskom substations. Setbacks for concentrated solar plants and photovoltaic plants are also specified away from substations.

#### **2.1.1 Purpose**

Setbacks for wind turbines and power lines / substations are required for various reasons. These include possible catastrophic failure of the turbine blade that may release fragments and which may be thrown onto nearby power lines that may result in damage with associated unplanned outages. Turbulence behind the turbine may affect helicopter flight during routine Eskom live line maintenance and

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inspections that may lead to safety risk of the aircraft / personnel. Concentrated solar plants and photovoltaic plants setback away from substations were required to prevent substations from being boxed in by these renewable generation plants limiting line route access to the substations.

### 2.1.2 Applicability

This document is applicable to the siting of all new and existing wind turbines, concentrated solar plants and photovoltaic plants near power lines and substations.

## 2.2 NORMATIVE/INFORMATIVE REFERENCES

### 2.2.1 Normative

1. <http://www.envir.ee/orb.aw/class=file/action=preview/id=1170403/Hiiumaa+turbulence+impact+EMD.pdf>.
2. <http://www.energy.ca.gov/2005publications/CEC-500-2005-184/CEC-500-2005-184.PDF>
3. <http://www.adamscountywind.com/Revised%20Site/Windmills/Adams%20County%20Ordinance/Adams%20County%20Wind%20Ord.htm>
4. [http://www.dsireusa.org/incentives/incentive.cfm?Incentive\\_Code=PA11R&RE=1&EE=1](http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=PA11R&RE=1&EE=1)
5. <http://www.wind-watch.org/documents/european-setbacks-minimum-distance-between-wind-turbines-and-habitations/>
6. <http://www.publications.parliament.uk/pa/ld201011/ldbills/017/11017.1-i.html>
7. [http://www.caw.ca/assets/pdf/Turbine\\_Safety\\_Report.pdf](http://www.caw.ca/assets/pdf/Turbine_Safety_Report.pdf)
8. Rogers J, Slegers N, Costello M. (2011) A method for defining wind turbine setback standards. Wind energy 10.1002/we.468

### 2.2.2 Informative

None

## 2.3 DEFINITIONS

Definition	Description
Setback	The minimum distance between a wind turbine and boundary line/dwelling/road/infrastructure/servitude etc.
Flicker	Effect caused when rotating wind turbine blades periodically cast shadows
Tip Height	The total height of the wind turbine ie. Hub height plus half rotor diameter (see Figure1)

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### 2.3.1 Disclosure Classification

**Controlled disclosure:** controlled disclosure to external parties (either enforced by law, or discretionary).

## 2.4 ABBREVIATIONS

Abbreviation	Description
None	

## 2.5 ROLES AND RESPONSIBILITIES

All personnel involved in the positioning wind turbines, concentrated solar plants and photovoltaic plants near power lines/substations must follow the setbacks outlined in this guideline.

## 2.6 PROCESS FOR MONITORING

Approval by Eskom in writing.

## 2.7 RELATED/SUPPORTING DOCUMENTS

None

## 3. DOCUMENT CONTENT

### 3.1 INTERNATIONAL SETBACK COMPARISON

Wind Turbine setbacks employed by various countries were considered. It was found that setbacks were determined for various reasons that include noise, flicker, turbine blade failure and wind effects. The distances (setbacks) varied based on these factors and were influenced by the type of infrastructure

Wind turbine setbacks varied for roads, power lines, dwellings, buildings and property and it was noted that the largest setbacks were employed for reasons of noise and flicker related issues [1-7]. Very few countries specified setbacks for power lines.

The literature survey [1-7], yielded information about studies and experiments were conducted to determine the distance that a broken fragment from a wind turbine might be thrown. Even though of low probability of hitting a power line [ $5.0 \times 10^{-5}$ ]<sup>[8]</sup>, the distances recorded were significant [750m]<sup>[8]</sup>

Setbacks were thus introduced to prevent any damage to Eskom infrastructure.

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Wind turbines may also cause changes in wind patterns with turbulent effects behind the hub. These factors dictate the wind turbine setbacks specified in this document.

Concentrated solar plants and photovoltaic plants also can limit access into the substation for power lines of all voltages. A setback distance must therefore be employed to prevent the substation from being boxed in by these generation plants. These setback distances are specified in this document.

### **3.2 ESKOM REQUIRED SETBACKS**

- Eskom requires a setback distance of 3 times the tip height of the wind turbine from the edge of the closest Eskom servitude (including vacant servitudes) for transmission lines.
- Eskom requires a setback distance of 1 times the tip height of the wind turbine from the edge of the closest Eskom servitude (including vacant servitudes) for distribution Lines.
- Eskom must be informed of any proposed wind turbine, concentrated solar plants and photovoltaic activity within a 5 km radius of a substation. No wind turbine structure shall be built within a 2 km radius of the closest point of the substation. Where concentrated solar plants and photovoltaic structures fall within a 2 km radius of the closest point of a substation, Eskom should be informed in writing during the planning phase of the construction of such plant or structure.
- Applicants must show that Eskom radio telecommunication systems (mainly microwave systems) will not be affected in any way by wind turbines.

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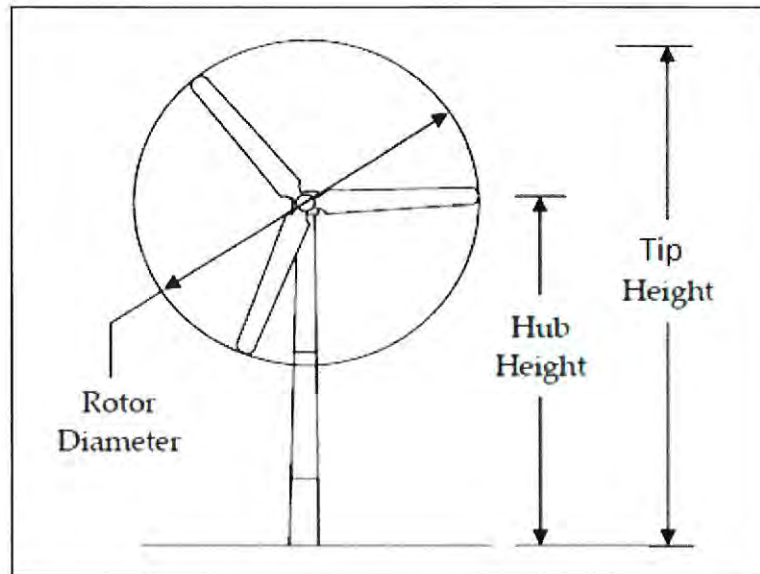


Figure 1: Horizontal Axis Wind Turbine <sup>[2]</sup>

**4. AUTHORISATION**

This document has been seen and accepted by:

Name & Surname	Designation
V Naidoo	Chief Engineer
Dr P H Pretorius	Electrical Specialist
J Geeringh	Snr Consultant Environ Mngt
B Haridass	Snr Consultant Engineer
R A Vajeth	Acting Snr Manager (Lines)

**5. REVISIONS**

Date	Rev.	Compiler	Remarks
November 2013	0	J W Chetty	First Publication - No renewable energy generation plant setback specification in existence

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## 6. DEVELOPMENT TEAM

The following people were involved in the development of this document:

Jonathan W Chetty (Mechanical Engineer)

Vivendhra Naidoo (Chief Engineer)

Dr Pieter H Pretorius (Electrical Specialist)

John Geeringh (Snr Consultant Environ Mngt)

Bharat Haridass (Snr Consultant Engineer)

Riaz A Vajeth (Acting Snr Manager (Lines))

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Eskom requirements for work in or near Eskom servitudes.

1. Eskom's rights and services must be acknowledged and respected at all times.
2. Eskom shall at all times retain unobstructed access to and egress from its servitudes.
3. Eskom's consent does not relieve the developer from obtaining the necessary statutory, land owner or municipal approvals.
4. Any cost incurred by Eskom as a result of non-compliance to any relevant environmental legislation will be charged to the developer.
5. If Eskom has to incur any expenditure in order to comply with statutory clearances or other regulations as a result of the developer's activities or because of the presence of his equipment or installation within the servitude restriction area, the developer shall pay such costs to Eskom on demand.
6. The use of explosives of any type within 500 metres of Eskom's services shall only occur with Eskom's previous written permission. If such permission is granted the developer must give at least fourteen working days prior notice of the commencement of blasting. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued in terms of the blasting process. It is advisable to make application separately in this regard.
7. Changes in ground level may not infringe statutory ground to conductor clearances or statutory visibility clearances. After any changes in ground level, the surface shall be rehabilitated and stabilised so as to prevent erosion. The measures taken shall be to Eskom's satisfaction.
8. Eskom shall not be liable for the death of or injury to any person or for the loss of or damage to any property whether as a result of the encroachment or of the use of the servitude area by the developer, his/her agent, contractors, employees, successors in title, and assignees. The developer indemnifies Eskom against loss, claims or damages including claims pertaining to consequential damages by third parties and whether as a result of damage to or interruption of or interference with Eskom's services or apparatus or otherwise. Eskom will not be held responsible for damage to the developer's equipment.
9. No mechanical equipment, including mechanical excavators or high lifting machinery, shall be used in the vicinity of Eskom's apparatus and/or services, without prior written permission having been granted by Eskom. If such permission is granted the developer must give at least seven working days' notice prior to the commencement of work. This allows time for arrangements to be made for supervision and/or precautionary instructions to be issued by the relevant Eskom Manager

Note: Where and electrical outage is required, at least fourteen work days are required to arrange it.

10. Eskom's rights and duties in the servitude shall be accepted as having prior right at all times and shall not be obstructed or interfered with.
11. Under no circumstances shall rubble, earth or other material be dumped within the servitude restriction area. The developer shall maintain the area concerned to Eskom's satisfaction. The developer shall be liable to Eskom for the cost of any remedial action which has to be carried out by Eskom.
12. The clearances between Eskom's live electrical equipment and the proposed construction work shall be observed as stipulated by *Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993)*.
13. Equipment shall be regarded electrically live and therefore dangerous at all times.
14. In spite of the restrictions stipulated by Regulation 15 of the Electrical Machinery Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), as an additional safety precaution, Eskom will not approve the erection of houses, or structures occupied or frequented by human beings, under the power lines or within the servitude restriction area.
15. Eskom may stipulate any additional requirements to highlight any possible exposure to Customers or Public to coming into contact or be exposed to any dangers of Eskom plant.
16. It is required of the developer to familiarise himself with all safety hazards related to Electrical plant.
17. Any third party servitudes encroaching on Eskom servitudes shall be registered against Eskom's title deed at the developer's own cost. If such a servitude is brought into being, its existence should be endorsed on the Eskom servitude deed concerned, while the third party's servitude deed must also include the rights of the affected Eskom servitude.

John Geeringh (Pr Sci Nat)

Senior Consultant Environmental Management  
Eskom GC: Land Development

## Andrea Gibb

---

**From:** Chris Schutte (CEJ) <SchutCE5@telkom.co.za>  
**Sent:** Monday, January 18, 2016 12:36 PM  
**To:** Andrea Gibb  
**Cc:** David Gopane (OD)  
**Subject:** CVR+0013-16 Sendawo Solar PV Developments  
**Attachments:** CVR+0013-16 LETTER TO AUTH.pdf; CVR+0013-16 UPDATED SKETCH.pdf

Good day

With reference to your above-mentioned application, I hereby inform you that our Client (Telkom SA SOC Ltd) approves the proposed work indicated on your drawings in terms of Section 23 of the Electronic Communication Act No. 36 of 2005 as amended.

Any changes/deviations from the original planning during or prior to construction must immediately be communicated to this office.

Approval is granted, subject to the following conditions, as per attached drawings supplied, our Client (Telkom SA SOC Ltd) infrastructure will be affected as indicated in ORANGE. Our Client (Telkom SA SOC Ltd) infrastructure must be regarded as approximate only.

Kind regards

Chris Schutte  
Mvelaphande Trading  
[SchutCE5@telkom.co.za](mailto:SchutCE5@telkom.co.za)  
051 401 6701 / 081 045 5686

~~~~~  
This e-mail is subject to the Telkom SA SOC Ltd electronic communication legal notice,  
available at : <http://www.telkom.co.za/TelkomEMailLegalNotice.PDF>  
~~~~~



Mvelaphande Trading

**WAYLEAVE MANAGEMENT  
CENTRAL REGION**

**Mvelaphande Trading  
44 B Mill Street  
BLOEMFONTEIN  
9300**

**Enquiries:** Chris Schutte  
**Telephone:** 051 - 401 6701/ 0810455686  
**Fax :** 088 0514016238  
**e-mail :** Schutce5@telkom.co.za

Our reference: CVR+0013-16

Your reference: Sendawo Solar PV Developments

18 January 2016

SIVEST  
P.O. Box 2921  
RIVONIA  
2128

**ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPrs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

With reference to your letter received on 06 January 2016.

With reference to your above-mentioned application, I hereby inform you that our Client (Telkom SA SOC Ltd) approves the proposed work indicated on your drawings in terms of Section 23 of the Electronic Communication Act No. 36 of 2005 as amended.

Any changes/deviations from the original planning during or prior to construction must immediately be communicated to this office.

Approval is granted, subject to the following conditions, as per attached drawings supplied, our Client (Telkom SA SOC Ltd) infrastructure will be affected as indicated in ORANGE. Our Client (Telkom SA SOC Ltd) infrastructure must be regarded as approximate only. Consequently, the following conditions apply:

**Aerial Plant** – At points of crossing, the overhead power lines should cross above the overhead communication lines in accordance with, and clearances stipulated in the Occupational Health and safety Act no 85 of 1993, Machinery regulations 20 – Crossings, and Electrical machinery Regulations 15 – Clearances of Power Lines. If the specifications could not be met, all deviation costs will be for the applicant's account. We also refer to section 25 of the Electronic Communications Act 36 of 2005.

Calculations have shown that an earth fault on the high voltage Power lines will induce excessive low frequency induction into the Communication lines. As a result of this, the cost to deviate / alter the communication lines to prevent this induction will be for the power provider.

Approved on condition that, should it later be found necessary to deviate the existing communication line due to existing noise interference or any other reason whatsoever, the cost of such remedial action shall be repayable.

Relocations of our Client (Telkom SA SOC Ltd) plant will be done at customer's request and will be a repayable project

Please notify the office within 21 working days from date of this letter of acceptance and if any alternative proposal is available of if a recoverable work should commence, the liaison officer is **Chris Schutte** at tel. no. **051 – 401 6701**.

As important cables are affected, **Mr David Gopane** must be contacted at telephone number **081 401 1563** two weeks prior of commencement on construction work. It would be appreciated if this office can be notified within 30 days on completion of construction work. Confirmation is required on completion of construction as per agreed requirements.

On completion of this project please certify that all requirements as stipulated in this letter have been met. Please note that should any of our Client (Telkom SA SOC Ltd) infrastructure has to be relocated or altered as a result of your activities the cost for such alterations or relocations will be for your account in terms of section 25 of the Electronic Communications Act.

Should our Client (Telkom SA SOC Ltd) infrastructure be damaged while work is undertaken, kindly call the Toll free number **0800203951** immediately

All of our Client (Telkom SA SOC Ltd) rights remain reserved.

**Mr David Gopane** must be contacted at telephone number **081 401 1563**, before any commencement of work.

Yours faithfully



Chris Schutte



**PROPOSED CONSTRUCTION OF A 400kV POWERLINE AND SUBSTATION TO SERVE PROPOSED PHOTOVOLTAIC (PV) ENERGY FACILITIES**  
**SENDAWO SOLAR NEAR VRYBURG NORTH WEST PROVINCE REGIONAL CONTEXT**

- Legend**
- Local Municipal Boundaries
  - National Routes
  - Main Roads
  - Secondary Roads
  - Railway Line
  - Existing High Voltage Power Lines (400kV)
  - Main Rivers
  - Proposed Sendawo PV Application Site
  - Main Towns
  - Existing Substation
  - Proposed Substation Site Alternatives

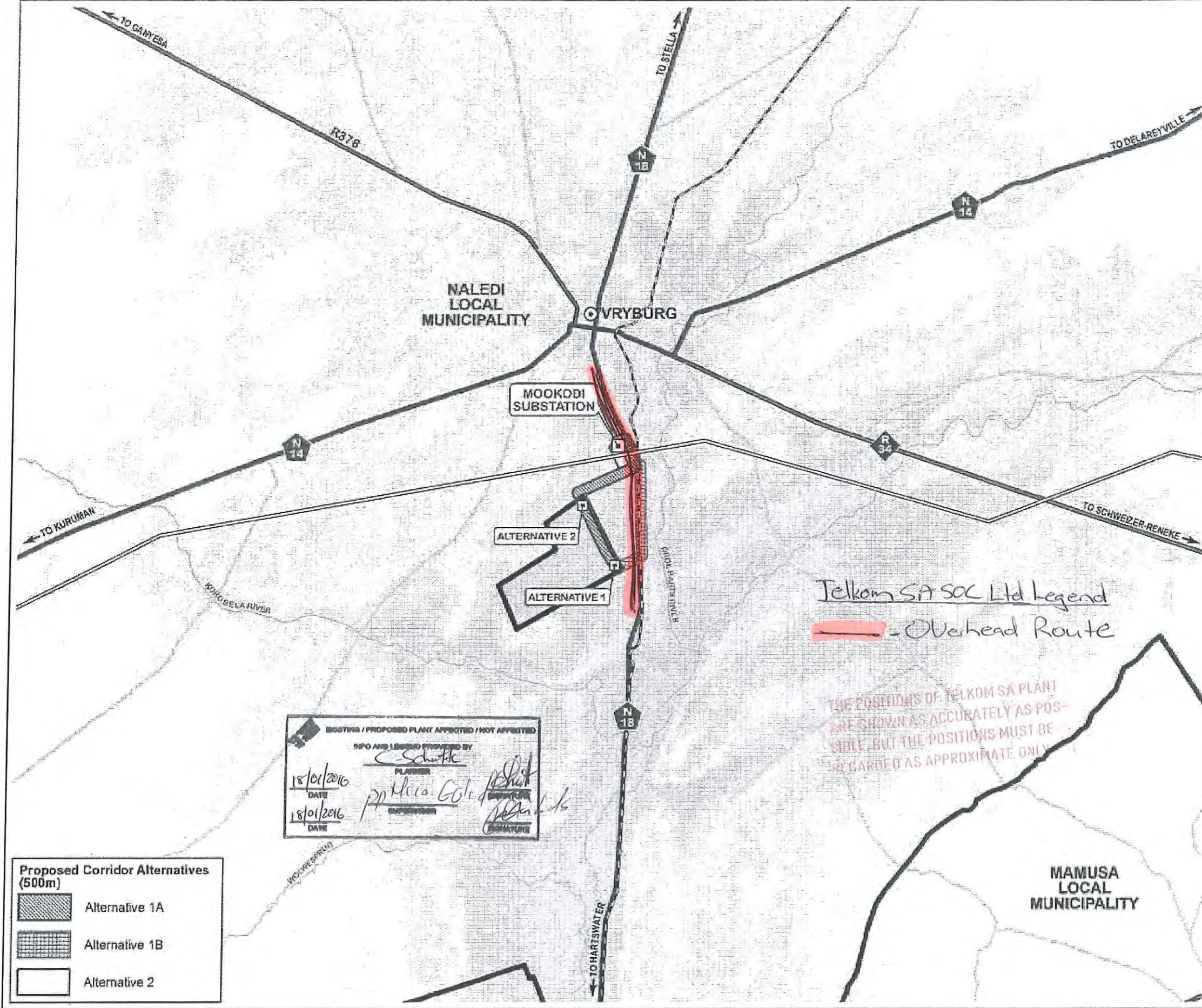
**SOURCE:**  
 ESKOM, 2012  
 BIOTHERM ENERGY, 2015  
 MGI, 2015

**SIVEST**  
 ENVIRONMENTAL DIVISION  
 31 WELLES ROAD  
 FICOLA 2028  
 JOHANNESBURG  
 SOUTH AFRICA  
 Phone: +27 11 153 0500  
 Fax: +27 11 823 2275  
 e-mail: m15@sivest.co.za

Project No 13303	Map Ref No 133032-3C_04	Prepared By KLS	Date 06/11/2015
---------------------	----------------------------	--------------------	--------------------

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THIS MAP HAS BEEN PREPARED UNDER THE CONTROLS ESTABLISHED BY THE SIVEST QUALITY MANAGEMENT SYSTEM AND MEETS THE REQUIREMENTS OF THE SETA QUALITY GRADING SYSTEM THAT IS ISO COMPLIANT



- Proposed Corridor Alternatives (500m)**
- Alternative 1A
  - Alternative 1B
  - Alternative 2

## Hlengiwe Ntuli

---

**From:** Ogone Mosiapo [<ogoneb@icloud.com>](mailto:ogoneb@icloud.com)  
**Sent:** 11 February 2016 12:31 PM  
**To:** Hlengiwe Ntuli  
**Subject:** Concurrence with Sendawo Project

The District municipality has no objection to the project.

Regards  
Sent from my iPad

## Hlengiwe Ntuli

---

**From:** Lourens Leeuwner <lourensl@ewt.org.za>  
**Sent:** 11 February 2016 04:51 PM  
**To:** Hlengiwe Ntuli  
**Subject:** RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Line: DSR Comment Period Ending

Hi Hlengiwe

I have reviewed the Avifaunal specialist report. We have no comments at this stage.

Please keep the EWT up to date with further correspondence regarding this development. Thank you.

Regards

Lourens Leeuwner  
Renewable Energy Project Manager  
**Endangered Wildlife Trust**  
W + 27 21 788 5661 | C + 27 72 775 5111  
Email: [lourensl@ewt.org.za](mailto:lourensl@ewt.org.za) | Web: [www.ewt.org.za](http://www.ewt.org.za) | Skype: lourenslleeuwner

Physical Address: 86 Capricorn Drive, Capricorn Business Park, Muizenberg, Cape Town



Physical Address: Building K2, Pinelands Office Park, Ardeer Road, Modderfontein, 1609  
Postal Address: Private Bag X11, Modderfontein, 1645, Johannesburg, South Africa  
GPS Co-ordinates: S 26° 05.591' | E 28° 09.247'  
Tell: +27 11 372 3600 Fax: +27 11 608 4682

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---

**From:** Hlengiwe Ntuli [<mailto:HlengiweN@sivest.co.za>]  
**Sent:** Wednesday, February 10, 2016 2:10 PM  
**To:** Lourens Leeuwner <lourensl@ewt.org.za>  
**Subject:** FW: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Line: DSR Comment Period Ending  
**Importance:** High

Good Day Lourens,

As discussed via telephone, please send us your written comment for the project even if you do not have a comment.

Kind Regards,

**Hlengiwe Ntuli**  
Projects Secretary  
**SiVEST Environmental & Civils Divisions**



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Direct +27 11 798 0690 Tel +27 11 798 0600 fax +27 11 803 7272  
email [HlengiweN@sivest.co.za](mailto:HlengiweN@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)



---

**Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners**  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

---

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Dear Interested and/or Affected Party

ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPrs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE (DEA REFERENCE NUMBERS TO BE CONFIRMED)

SiVEST sent the Draft Scoping Report for the proposed Sendawo Solar PV near Vryburg to your Department on 11 January 2016 for comment (refer to the attached email). Please can you advise if comments will be submitted to us for inclusion in the Final Scoping Report.

We would like to inform you that, the comment period for state departments has ended on **9 February** and you are advised to send your comments to us before **Friday 12 February 2016**.

Kind Regards,

**Hlengiwe Ntuli**  
Projects Secretary  
**SiVEST Environmental & Civils Divisions**



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Direct +27 11 798 0690 Tel +27 11 798 0600 fax +27 11 803 7272  
email [HlengiweN@sivest.co.za](mailto:HlengiweN@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)



---

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## Hlengiwe Ntuli

---

**From:** Harry Roberts <RobertsH@caa.co.za>  
**Sent:** 11 February 2016 02:45 PM  
**To:** Hlengiwe Ntuli; Lizelle Stroh; Werner Kleynhans  
**Subject:** RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Line: DSR Comment Period Ending

Afternoon Hlengiwe,

Your mails acknowledged. The SACAA as I&AP will be providing comment on the planned project, following review of the information provided. This will be forwarded in the course of the week coming.

With reference to the planned projects, an assessment of the project is required, particularly with regard to possible impact on aviation and the inclusion of the associated infrastructure into databases maintained recording possible obstacles to aviation. To this end, kindly provide a kml (Google Earth) file reflecting the footprint of the proposed development site including the proposed overhead electric power line route that will evacuate the generated power to the national grid.

Also indicate the highest structure of the project & the Overhead electric power transmission line.

Note that there may be other wind farms and PV farms in the area. Unique names are preferable.

Please always use the proposed PV farm name in the Subject box when corresponding via email with this office and indicate the name & address which should appear on the CAA approval/decline letter.

There is an assessment fee of R725 per application.

For billing purposes: company name VAT nr. and postal details.

Kindly ensure that all the above data is forwarded. Incomplete data causes unnecessary delays.



**Harry Roberts**



**Obstacle Specialist**

**PANS-OPS (Procedures for Air Navigation Services – Aircraft Operations)**

**Air Navigation Services**

**Tel:** +27 11 545 1071 | **Mobile:** +27 79 505 8417 |

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

Follow us on  

---

**From:** Hlengiwe Ntuli [<mailto:HlengiweN@sivest.co.za>]

**Sent:** 10 February 2016 12:45 PM

**To:** Harry Roberts

**Subject:** FW: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Line: DSR Comment Period Ending

**Importance:** High

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Kind Regards,

**Hlengiwe Ntuli**  
Projects Secretary  
**SiVEST Environmental & Civils Divisions**



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email [HlengiweN@sivest.co.za](mailto:HlengiweN@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)



---

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## Hlengiwe Ntuli

---

**From:** Simphiwe Masilela <SimphiweM@atns.co.za>  
**Sent:** 12 February 2016 02:47 PM  
**To:** Hlengiwe Ntuli  
**Subject:** RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Line: DSR Comment Period Ending



Good day Hlengiwe,

### **RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Lin**

Please note that ATNS is aware of the above mentioned.

The area in which the Solar PV will be situated falls within the Annex 14 surfaces for Vryburg private Airfield, however we request that you please update us should there be any new developments that may affect our interests.

Please note that there is a fee attached to the Annex 14 assessment that is to be conducted, we will duly conduct the formal assessment as required when the project is ready for construction.

In order for us to carry out a successful assessment we require the following information:

1. LOCATION (Co-ordinates WGS84 system)
2. SITE/GROUND ELEVATION (AMSL)
3. HEIGHT TO TOP OF PROPOSED DEVELOPMENT(in meters)

You have provided us with the coordinates, we will just require point 2&3.

Kind Regards,

Simphiwe Masilela

**Obstacle Evaluator** | ATM

ATNS Head Office, Bruma, Johannesburg, South Africa

T: 011 607 1228 • F: 011 607 1466 • C:

E: SimphiweM@atns.co.za • W: [www.atns.co.za](http://www.atns.co.za)



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**From:** Hlengiwe Ntuli [mailto:HlengiweN@sivest.co.za]

**Sent:** Tuesday, February 09, 2016 4:17 PM

**To:** Simphiwe Masilela

**Subject:** RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Line: DSR Comment Period Ending

Good Day Simphiwe,

My apologies for the delay, please see below:

**SENDAWO PV APPLICATION SITE**

**COORDINATES (DD MM SS.sss)**

NORTH-WEST CORNER	NORTH-EAST CORNER	CENTRE POINT	SOUTH-WEST CORNER	SOUTH-EAST CORNER
S27° 4' 13.872" E24° 41' 10.716"	S27° 1' 52.680" E24° 43' 39.900"	S27° 3' 40.690" E24° 43' 0.553"	S27° 5' 22.740" E24° 41' 43.116"	S27° 3' 48.672" E24° 44' 48.228"

**SENDAWO DEVELOPMENT AREAS SUMMARY**

PHASE	AREA (HECTARES)	CENTRE POINT COORDINATES (DD MM SS.sss)	
		SOUTH	EAST
SENDAWO SOLAR 1 DEVELOPMENT AREA	367.46	S27° 3' 52.625"	E24° 43' 50.328"
SENDAWO SOLAR 2 DEVELOPMENT AREA	415.86	S27° 4' 9.975"	E24° 42' 36.059"
SENDAWO SOLAR 3 DEVELOPMENT AREA 1 (EAST)	268.32	S27° 2' 37.278"	E24° 43' 45.040"
SENDAWO SOLAR 3 DEVELOPMENT AREA 2 (WEST)	90.23	S27° 2' 51.881"	E24° 42' 54.367"

Kind Regards,

**Hlengiwe Ntuli**  
Projects Secretary  
**SiVEST Environmental & Civils Divisions**



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**From:** Simphiwe Masilela [<mailto:SimphiweM@atns.co.za>]  
**Sent:** 09 February 2016 03:11 PM  
**To:** Hlengiwe Ntuli <[HlengiweN@sivest.co.za](mailto:HlengiweN@sivest.co.za)>



**Subject:** RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Line: DSR Comment Period Ending

The same goes for this one please.

Kind Regards,

Simphiwe Masilela

**Obstacle Evaluator** | ATM

ATNS Head Office, Bruma, Johannesburg, South Africa

T: 011 607 1228 • F: 011 607 1466 • C:

E: [SimphiweM@atns.co.za](mailto:SimphiweM@atns.co.za) • W: [www.atns.co.za](http://www.atns.co.za)

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**From:** Hlengiwe Ntuli [<mailto:HlengiweN@sivest.co.za>]

**Sent:** Tuesday, February 09, 2016 2:17 PM

**Subject:** Three Proposed Sendawo Solar Photovoltaic Energy Facilities and associated Power Line: DSR Comment Period Ending

**Importance:** High

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Dear Interested and/or Affected Party

ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPRs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE (DEA REFERENCE NUMBERS TO BE CONFIRMED)

SiVEST sent the Draft Scoping Report for the proposed Sendawo Solar PV near Vryburg to your Department on 11 January 2016 for comment (refer to the attached email). Please can you advise if comments will be submitted to us for inclusion in the Final Scoping Report.

We would like to inform you that, the comment period for state departments is ending **today** and you are advised to send your comments to us before **Friday 12 February 2016**.

Kind Regards,

**Hlengiwe Ntuli**

Projects Secretary

**SiVEST Environmental & Civils Divisions**



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email [HlengiweN@sivest.co.za](mailto:HlengiweN@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)



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**energy**

Department:  
Energy  
REPUBLIC OF SOUTH AFRICA

Enquiries: Mr Pheladi Masipa, E-mail: [Pheladi.Masipa@energy.gov.za](mailto:Pheladi.Masipa@energy.gov.za)  
Private Bag X96, Pretoria 0001, Tel: 012 406 7650, Fax: 012 323 5819

Ms Andrea Gibb  
SiVEST  
P.O. Box 2921  
Rivonia  
2128

**Tel:** +27 (0)11 798 0600

**E-mail:** [andreaq@sivest.co.za](mailto:andreaq@sivest.co.za)

Dear Ms Gibb

**RE: DRAFT SCOPING REPORT FOR THE PROPOSED CONSTRUCTION OF THE SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITY NEAR VRYBURG, NORTH WEST PROVINCE**

The Department of Energy hereby acknowledges receipt of the Draft Scoping Report for the proposed construction of the Sendawo 75MW Solar Photovoltaic (PV) Energy facility near Vryburg, North West Province

We would like to confirm that the Department will be inviting Independent Power Producers to submit proposals for the generation of electricity from renewable energy sources under the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP) during the second quarter of 2016.

We have gone through the report and wish to SiVEST that we are satisfied with the report. We further wish you all the best in securing a positive Environmental Authorization from the Department of Environmental Affairs.

The Department would appreciate being kept informed of progress with this project.

Should you need any energy policy related information or clarity, kindly contact: Mr Pheladi Masipa on 012 406 7650 or please send your query to [Pheladi.Masipa@energy.gov.za](mailto:Pheladi.Masipa@energy.gov.za).

Yours sincerely,



**Mr P. MASIPA, Pr.Sci.Nat.**

**PROJECT COORDINATOR: RENEWABLE ENERGY INITIATIVES**

**DATE: 15/02/2016**

## Hlengiwe Ntuli

---

**From:** John Geeringh <GeerinJH@eskom.co.za>  
**Sent:** 22 February 2016 10:51 AM  
**To:** Hlengiwe Ntuli  
**Subject:** RE: Tlisitseng Solar PV projects Final Scoping Reports submitted to the DEA

Can you please send me KMZ files of the sites, layouts and line routes for the proposed power lines for my records and proper checking against our plans. Can you also send me the Sendawo KMZ files? I would appreciate it very much.

Regards  
John

---

**From:** Hlengiwe Ntuli [mailto:HlengiweN@sivest.co.za]  
**Sent:** 19 February 2016 03:48 PM  
**Cc:** Rebecca Thomas; Lynsey Rimbault; nicolenev@zitholele.co.za  
**Subject:** Tlisitseng Solar PV projects Final Scoping Reports submitted to the DEA

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Dear Interested and/or Affected Party

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE TWO TLISITSENG SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES NEAR LICHTENBURG, NORTH WEST PROVINCE

DEA Ref. TLISITSENG PV SOLAR 1: 14/12/16/3/3/2/889  
TLISITSENG PV SOLAR 2: 14/12/16/3/3/2/890

\* FSR AVAILABLE FOR REVIEW

We wish to express our appreciation to the stakeholders who submitted comments on the Draft Scoping Reports (DSRs) for the above mentioned proposed projects during the public review period (Monday 11 January 2016 to Tuesday 9 February 2016). After the public review period, the DSRs were updated, taking into consideration the issues and concerns raised by stakeholders.

The Final Scoping Reports (FSRs) were submitted to the Department of Environmental Affairs (DEA) for their consideration on Friday 19 February 2016.

In accordance with the National Environmental Management Act (NEMA), the FSRs will be available for public comment and review from Monday 22 February 2016 to Monday 7 March 2016 (end of business day). The FSRs are available on SiVEST's website: <http://www.sivest.co.za/> click on 'Downloads' (top right), then scroll down to 13303 Tlisitseng PV Energy Development. Alternatively, please contact SiVEST to obtain an electronic copy of the reports on CD.

Should you have any comments on the FSRs, please submit these in writing directly to the DEA on or before Monday 7 March 2016 (close of business day):

Department of Environmental Affairs (DEA)  
Ms. Mmamohale Kabasa  
Private Bag X447

PRETORIA  
0001  
Tel: 012 399 9420  
Email: [MKabasa@environment.gov.za](mailto:MKabasa@environment.gov.za)

As per the EIA Regulations, please send a copy of your comments to the SiVEST Office at the following address:

SiVEST Environmental  
Lynsey Rimbault  
PO BOX 2921  
Rivonia  
2128  
Tel: 011 798 0600  
Fax: 011 803 7272  
Email: [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

Kind Regards,

REBECCA THOMAS (B.Sc Env. Sc.; PDM Business Management)  
Senior Environmental Scientist  
SiVEST Environmental Division

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direct +27 11 798 0634 tel +27 11 798 0600 fax +27 11 803 7272 cell +27 82 302 9010  
email [rebeccat@sivest.co.za](mailto:rebeccat@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

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agriculture,  
forestry & fisheries

Department:  
Agriculture, forestry & fisheries  
REPUBLIC OF SOUTH AFRICA

Directorate Land Use and Soil Management, Private Bag x120, Pretoria, 0001  
Delpen Building, c/o Annie Botha & Union Streets, Riviera

**From:** Director: Land Use and Soil Management

**Tel:** (012) 319 7678   **Fax:** (012) 329 5938   **e-mail:** [agriland@nda.agric.za](mailto:agriland@nda.agric.za)

SIVEST  
P.O. BOX 2921  
RIVONIA  
2128

2016-05-24

Dear Sir/Madam

This serves as a notice of receipt and confirms that your application has been captured in our electronic AgriLand tracking and management system. It is strongly recommended that you use the on-line AgriLand application facility in future.

Detail of your application as captured:

Type: EIA  
Your reference number: 13033-SENDAWO  
Property Description: EDINBURGH NO. 735  
**DATED: 23 MAY 2016**

Please use the following reference number in all enquiries:

**AgriLand reference number: 2016\_05\_0166**

Enquiries can be made to the above postal, fax or e-mail address.

Yours sincerely  
MAUMELA N.V  
**pp DIRECTOR: LAND USE AND SOIL MANAGEMENT**

Online application available at: <http://www.agis.agric.za/agriland>





agriculture,  
forestry & fisheries

Department:  
Agriculture, forestry & fisheries  
REPUBLIC OF SOUTH AFRICA

Directorate Land Use and Soil Management, Private Bag x120, Pretoria, 0001  
Delpen Building, c/o Annie Botha & Union Streets, Riviera

**From:** Director: Land Use and Soil Management

**Tel:** (012) 319 7678   **Fax:** (012) 329 5938   **e-mail:** [agriland@nda.agric.za](mailto:agriland@nda.agric.za)

SIVEST  
P.O. BOX 2921  
RIVONIA  
2128

2016-05-24

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Detail of your application as captured:

Type: EIA  
Your reference number: 13033-SENDAWO  
Property Description: EDINBURGH NO. 735  
**DATED: 23 MAY 2016**

Please use the following reference number in all enquiries:

**AgriLand reference number: 2016\_05\_0166**

Enquiries can be made to the above postal, fax or e-mail address.

Yours sincerely  
MAUMELA N.V  
**pp DIRECTOR: LAND USE AND SOIL MANAGEMENT**

Online application available at: <http://www.agis.agric.za/agriland>

## **sivest\_PPP**

---

**From:** Mamokete Mafume <MafumoML@eskom.co.za>  
**Sent:** 31 May 2016 01:52 PM  
**To:** sivest\_PPP  
**Subject:** RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and Associated Power Line: EIA Newsletter

Hello

I see that the proposed study area is passing under the newly built power line, I would like to find out if you already have the height of the proposed lines which will be connecting proposed PV to Mookodi substation?

Regards

Mamokete L. Mafume  
Senior Environmental Advisor  
Eskom Land Development  
**Tel:** +27 11 800 2621  
**Cell:** +27 82 902 7166  
**Fax:** +27 86 665 2128  
Email: MafumoML@eskom.co.za

---

**From:** John Geeringh  
**Sent:** 31 May 2016 10:11 AM  
**To:** Itumeleng Moeng  
**Cc:** Mamokete Mafume; Mfundo Maphanga; Lindiwe Motaung  
**Subject:** FW: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and Associated Power Line: EIA Newsletter

Any comments from your section on this proposed development?

John

---

**From:** sivest\_PPP [[mailto:sivest\\_ppp@sivest.co.za](mailto:sivest_ppp@sivest.co.za)]  
**Sent:** 23 May 2016 01:29 PM  
**Cc:** Andrea Gibb; Lynsey Rimbault; 'nicolenev@zitholele.co.za'  
**Subject:** Three Proposed Sendawo Solar Photovoltaic Energy Facilities and Associated Power Line: EIA Newsletter

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Dear Stakeholder

We would like to take this opportunity to inform you that the Department of Environmental Affairs (DEA) has accepted the Final Scoping Reports and approved the Plan of Study for the Environmental Impact Phase of the Sendawo 1, 2 and 3 Solar Photovoltaic (PV) Energy Facilities and associated Substation and 400kV Power Line.

Attached is the EIA Newsletter and Site Locality Maps for your information.

Kind Regards,

Andrea Gibb (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management)  
Environmental Practitioner and Visual Specialist  
SiVEST Environmental Division

SiVEST is a Level 3 BBBEE Contributor

Direct +27 11 798 0638 Tel +27 11 798 0600 fax +27 11 803 7272  
email [andreas@sivest.co.za](mailto:andreas@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare  
(Zimbabwe)

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## Lynsey Rimbault

---

**From:** Lynsey Rimbault  
**Sent:** 07 March 2016 14:59  
**To:** 'GeerinJH@eskom.co.za'  
**Cc:** Hlengiwe Ntuli  
**Subject:** RE: Tlisitseng Solar PV projects Final Scoping Reports submitted to the DEA  
**Attachments:** 13303\_S\_Project2\_PVArray.kml; 13303\_S\_Project3\_PVArray.kml; 13303\_S\_Project1\_PVArray.kml; 13303\_T\_Project2\_PVArray\_Alternatives.kml; 13303\_T\_Project1\_PVArray\_Alternatives.kml; 13303\_Tlisitseng\_PL\_Project2\_08Feb2016.kml; 13303\_Tlisitseng\_PL\_Project1\_08Feb2016.kml; 13303\_Sendawo\_EIAPhase\_Alternatives.kml

Dear John,

Apologies for the delayed reply.

Please see attached the kmls for the site boundaries for the 5 PV projects. The layout alternatives have not yet been finalised, this will be done during the EIA phase of the projects. Please also find kmls for the power line corridors and proposed substation sites for the 3 Grid connection projects.

Kind Regards  
Lynsey Rimbault

**Lynsey Rimbault** *(B.Sc.(Hons) Geography; M.Sc. Biodiversity, Conservation and Management)*  
Environmental Consultant  
**SiVEST Environmental**



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Direct +27 11 798 0631 Tel +27 11 798 0600 fax +27 11 803 7272 cell +27 82 669 9558  
email [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)



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Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

---

---

**From:** John Geeringh [<mailto:GeerinJH@eskom.co.za>]  
**Sent:** 22 February 2016 10:51 AM  
**To:** Hlengiwe Ntuli <[HlengiweN@sivest.co.za](mailto:HlengiweN@sivest.co.za)>  
**Subject:** RE: Tlisitseng Solar PV projects Final Scoping Reports submitted to the DEA

Can you please send me KMZ files of the sites, layouts and line routes for the proposed power lines for my records and proper checking against our plans. Can you also send me the Sendawo KMZ files? I would appreciate it very much.

Regards  
John

---

**From:** Hlengiwe Ntuli [<mailto:HlengiweN@sivest.co.za>]  
**Sent:** 19 February 2016 03:48 PM  
**Cc:** Rebecca Thomas; Lynsey Rimbault; [nicolenev@zitholele.co.za](mailto:nicolenev@zitholele.co.za)  
**Subject:** Tlisitseng Solar PV projects Final Scoping Reports submitted to the DEA

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Dear Interested and/or Affected Party

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE TWO TLISITSENG SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES NEAR LICHTENBURG, NORTH WEST PROVINCE

DEA Ref. TLISITSENG PV SOLAR 1: 14/12/16/3/3/2/889

TLISITSENG PV SOLAR 2: 14/12/16/3/3/2/890

\* FSR AVAILABLE FOR REVIEW

We wish to express our appreciation to the stakeholders who submitted comments on the Draft Scoping Reports (DSRs) for the above mentioned proposed projects during the public review period (Monday 11 January 2016 to Tuesday 9 February 2016). After the public review period, the DSRs were updated, taking into consideration the issues and concerns raised by stakeholders.

The Final Scoping Reports (FSRs) were submitted to the Department of Environmental Affairs (DEA) for their consideration on Friday 19 February 2016.

In accordance with the National Environmental Management Act (NEMA), the FSRs will be available for public comment and review from Monday 22 February 2016 to Monday 7 March 2016 (end of business day). The FSRs are available on SiVEST's website: <http://www.sivest.co.za/> click on 'Downloads' (top right), then scroll down to 13303 Tlisitseng PV Energy Development. Alternatively, please contact SiVEST to obtain an electronic copy of the reports on CD.

Should you have any comments on the FSRs, please submit these in writing directly to the DEA on or before Monday 7 March 2016 (close of business day):

Department of Environmental Affairs (DEA)  
Ms. Mmamohale Kabasa  
Private Bag X447  
PRETORIA  
0001  
Tel: 012 399 9420  
Email: [MKabasa@environment.gov.za](mailto:MKabasa@environment.gov.za)

As per the EIA Regulations, please send a copy of your comments to the SiVEST Office at the following address:

SiVEST Environmental  
Lynsey Rimbault  
PO BOX 2921  
Rivonia  
2128  
Tel: 011 798 0600  
Fax: 011 803 7272  
Email: [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

Kind Regards,

REBECCA THOMAS (B.Sc Env. Sc.; PDM Business Management)  
Senior Environmental Scientist  
SiVEST Environmental Division

SiVEST is a Level 3 BBBEE Contributor

direct +27 11 798 0634 tel +27 11 798 0600 fax +27 11 803 7272 cell +27 82 302 9010  
email [rebeccat@sivest.co.za](mailto:rebeccat@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

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<http://www.49Million.co.za>

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## Lynsey Rimbault

---

**From:** Andrea Gibb  
**Sent:** 03 June 2016 13:12  
**To:** MafumoML@eskom.co.za  
**Cc:** Lynsey Rimbault; Hlengiwe Ntuli  
**Subject:** RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and Associated Power Line: EIA Newsletter

Hi Mamokete

Thank you for your enquiry. The exact height of the power line towers will only be determined during the detailed design phase, once a power line corridor has been authorised by the Department of Environmental Affairs (DEA). However, at this stage it is proposed that the typical structure to be used for the power line would predominantly be the steel lattice tower type (518H and 518C) in combination with other towers. The height of the steel lattice towers will vary between approximately 26m and 28m.

Kind Regards

**Andrea Gibb** (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management)  
Environmental Practitioner and Visual Specialist  
**SiVEST Environmental Division**



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**Direct** +27 11 798 0638 **Tel** +27 11 798 0600 **fax** +27 11 803 7272 **cell** +27 72 587 6525  
**email** [andrea@sivest.co.za](mailto:andrea@sivest.co.za) **website** [www.sivest.co.za](http://www.sivest.co.za)



---

**Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners**  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

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**rom:** Mamokete Mafume [[mailto:](mailto:mafume@eskom.co.za) ]

**Sent:** 31 May 2016 01:52 PM

**To:** sivest\_PPP <[sivest\\_ppp@sivest.co.za](mailto:sivest_ppp@sivest.co.za)>

**Subject:** RE: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and Associated Power Line: EIA Newsletter

Hello

I see that the proposed study area is passing under the newly built power line, I would like to find out if you already have the height of the proposed lines which will be connecting proposed PV to Mookodi substation?

Regards

Mamokete L. Mafume  
Senior Environmental Advisor  
Eskom Land Development  
**Tel:** +27 11 800 2621  
**Cell:** +27 82 902 7166  
**Fax:** +27 86 665 2128  
Email: [MafumoML@eskom.co.za](mailto:MafumoML@eskom.co.za)



---

**From:** John Geeringh  
**Sent:** 31 May 2016 10:11 AM  
**To:** Itumeleng Moeng  
**Cc:** Mamokete Mafume; Mfundo Maphanga; Lindiwe Motaung  
**Subject:** FW: Three Proposed Sendawo Solar Photovoltaic Energy Facilities and Associated Power Line: EIA Newsletter

Any comments from your section on this proposed development?

John

---

**From:** sivist\_PPP [[mailto:sivist\\_ppp@sivist.co.za](mailto:sivist_ppp@sivist.co.za)]  
**Sent:** 23 May 2016 01:29 PM  
**Cc:** Andrea Gibb; Lynsey Rimbault; 'nicolenev@zitholele.co.za'  
**Subject:** Three Proposed Sendawo Solar Photovoltaic Energy Facilities and Associated Power Line: EIA Newsletter

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Dear Stakeholder

We would like to take this opportunity to inform you that the Department of Environmental Affairs (DEA) has accepted the Final Scoping Reports and approved the Plan of Study for the Environmental Impact Phase of the Sendawo 1, 2 and 3 Solar Photovoltaic (PV) Energy Facilities and associated Substation and 400kV Power Line.

Attached is the EIA Newsletter and Site Locality Maps for your information.

Kind Regards,  
Andrea Gibb (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management)  
Environmental Practitioner and Visual Specialist  
SiVEST Environmental Division

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Direct +27 11 798 0638 Tel +27 11 798 0600 fax +27 11 803 7272  
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(Zimbabwe)

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## Andrea Gibb

---

**From:** phutieagae@subsolar.co.za  
**Sent:** Monday, January 11, 2016 2:05 PM  
**To:** Andrea Gibb  
**Cc:** berlijn@subsolar.co.za; 'Candice'; Lynsey Rimbault  
**Subject:** Request for electronic copies

**Categories:** BioTherm

Good day Ms. Gill

Subsolar Energy (Pty) Ltd, hereby requests electronic copies of the Draft Scoping Reports for the Three Proposed Sendawo Solar Photovoltaic Energy Facilities and the associated powerline.

Looking forward to your positive response,

With kind regards,

Ms. Claire Phutieagae-Top  
Project Manager

Phone: +27 79 822 2455  
Mobile: +27 74 655 7450  
Fax: +27 862 731 614

2nd Floor West Tower  
Nelson Mandela Square  
Maude Street, Sandown

PO Box 785553, Sandton, 2146



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## Andrea Gibb

---

**From:** Neil Faber <neilfabar@gmail.com>  
**Sent:** Thursday, January 14, 2016 4:51 PM  
**To:** Andrea Gibb

Good day Andrea

When is building going to start on the solar project at Vryburg ?

I see you have a poster at the door at the library

Thank you

Regards

Neil

## Andrea Gibb

---

**From:** Theo Geldenhuys <theogeldenhuys@lantic.net>  
**Sent:** Friday, January 15, 2016 11:12 AM  
**To:** Andrea Gibb  
**Subject:** SONKRAGSTASIES VRYBURG MAFEKING

GEAGTE ANDREA

EK HET GELEES VAN DIE BEOOGDE PROJEK VAN SONKRAGANLEG NABY VRYBURG.

EK VERLANG MEER INLIGTING IN NOG BEOOGDE PROJEKTE AANGESIEN EK GROND KAN AANBIED IN GEBIED TUSSEN STELLA MAFEKINGAREA.

EK HOOR GRAAG VAN U.

BY VOORBAAT DANK.

THEO GELDENHUYS

theogeldenhuys@lantic.net

## Lynsey Rimbault

---

**From:** phutieagae@subsolar.co.za  
**Sent:** 19 January 2016 14:34  
**To:** Andrea Gibb  
**Cc:** berlijn@subsolar.co.za; 'Candice'; Lynsey Rimbault  
**Subject:** RE: Request for electronic copies

Hi Andrea,

I am going through your specialist reports for the scoping which I have downloaded from sivest website. There is no socio-economic report. The heritage report has been saved twice, under Heritage and also under socio-economic. Can you please email me the socio-economic report?

Regards,  
Claire

---

**From:** Andrea Gibb [mailto:AndreaG@sivest.co.za]  
**Sent:** 12 January 2016 06:58 AM  
**To:** phutieagae@subsolar.co.za  
**Cc:** berlijn@subsolar.co.za; 'Candice'; Lynsey Rimbault  
**Subject:** RE: Request for electronic copies

Hi Claire

As requested, we will post a CD containing the Draft Scoping Reports to the PO Box address provided below in your email signature.

Please note that that the reports are also available on our website <http://www.sivest.co.za/>, click on 'Downloads' then;

- browse to the folder '13303 Sendawo PV Energy Development'
- browse to the folder '13303 Tlisitseng PV Energy Development'

Kind Regards

**Andrea Gibb** (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management)  
Environmental Practitioner and Visual Specialist  
**SiVEST Environmental Division**



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**Direct** +27 11 798 0638 **Tel** +27 11 798 0600 **fax** +27 11 803 7272 **cell** +27 72 587 6525  
**email** [andreag@sivest.co.za](mailto:andreag@sivest.co.za) **website** [www.sivest.co.za](http://www.sivest.co.za)



---

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Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

---

---

**From:** [phutieagae@subsolar.co.za](mailto:phutieagae@subsolar.co.za) [mailto:[phutieagae@subsolar.co.za](mailto:phutieagae@subsolar.co.za)]  
**Sent:** Monday, January 11, 2016 2:05 PM  
**To:** Andrea Gibb <[AndreaG@sivest.co.za](mailto:AndreaG@sivest.co.za)>

Cc: [berlijn@subsolar.co.za](mailto:berlijn@subsolar.co.za); 'Candice' <[pillay@subsolar.co.za](mailto:pillay@subsolar.co.za)>; Lynsey Rimbault <[LynseyR@sivest.co.za](mailto:LynseyR@sivest.co.za)>  
Subject: Request for electronic copies

Good day Ms. Gill

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With kind regards,

Ms. Claire Phutieagae-Top  
Project Manager

Phone: +27 79 822 2455  
Mobile: +27 74 655 7450  
Fax: +27 862 731 614

2nd Floor West Tower  
Nelson Mandela Square  
Maude Street, Sandown

PO Box 785553, Sandton, 2146



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## Lynsey Rimbault

---

**From:** Claire Threadingham <ClaireT@L2B.co.za>  
**Sent:** 10 March 2016 15:21  
**To:** Andrea Gibb; Lynsey Rimbault  
**Subject:** Three Sendawo 75Mw Solar Energy facilities and associated substation and power Line, Vryburg, North West

Good day,

I hope you are well.

Please may I register as an I&AP for this development and also request a copy of the BID and Draft Scoping Report.

Looking forward to hearing from you.

Kindest regards

Claire Threadingham  
Regional Content Researcher  
Private Projects

Leads 2 Business ([www.L2B.co.za](http://www.L2B.co.za))

Tel: 0860 836337  
0860 TENDER  
Fax: 033 3435882

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## Lynsey Rimbault

---

**From:** Candice van Wyk <candice@southernmapping.com>  
**Sent:** 23 March 2016 12:22  
**To:** Andrea Gibb  
**Cc:** Lynsey Rimbault  
**Subject:** EIA for Proposed 3 Sendawo sites near Vryberg



Dear Andrea Gibb and Lynsey Rimbault

I have recently come across a document containing information on the Sendawo Solar Photovoltaic facilities and powerline near Vryberg that you are working on. We would like to offer our services if required in regards Satellite and LiDAR surveys which you may require in the establishment of the Powerline and solar facilities

Southern Mapping Company (SMC) is a leading geospatial solution provider and aerial survey company using remote sensing technologies operating across Africa. We specialise in high accuracy LiDAR, Hyperspectral and Thermal Imagery; as well as a range of Satellite Imagery products for use in the infrastructure, mining, urban mapping, agriculture and environmental sectors. We produce high accuracy maps with related geospatial information including Orthophoto's and DTM's (digital terrain models), Hyperspectral data for Mineral and Environmental studies and Thermal Surveys; from which a vast range of products is produced for use in Infrastructure and Mining, Planning, Risk Management and GIS Solutions.

The owners and employees of SMC have 17 years of experience in airborne LiDAR technology and are the only resident company in Africa which offers airborne hyperspectral mapping services. We have successfully completed projects in numerous countries around the world, with more than 600 projects completed in thirty countries, since the beginning of 2007.



Southern Mapping Company offers our clients a comprehensive service which includes:

- Mineral mapping using Landsat and Aster satellite imagery;
- Satellite imagery, at resolutions ranging from 0.5m to 90m;
- Satellite elevation models, at vertical accuracies of 0.5m, 3-5m and 10-20m;

- Satellite Radar imagery;
- Archive data from a wide variety of sources and at a variety of resolutions;
- Multispectral Imager;
- Hyperspectral mapping at resolutions of 1m to 3m, for mapping of vegetation species, soil types, surface mineralisation, water and air-borne pollution, etc.;
- Hyperspectral mapping of drill cores for 3D mineral mapping;
- Handheld Spectrometer Field Measurements / Drill Core Scanning;
- Thermal Imagery for underground water detection and or underground fires;
- LiDAR-derived terrain models (Ground, power-lines, building, trees etc), at vertical accuracies from 5cm to 50cm;
- Full colour Ortho-imagery at resolutions and accuracies of 5cm to 50cm;
- Contour data;
- Calculation of volumes (Dams, pits, stockpiles etc), either ad-hoc or at regular intervals;
- 2D Line mapping (Feature vectorisation);
- Paper plots;
- 3D models;
- GIS services.

Should you require me to provide additional information, or to present our company to you or your colleagues at a formal meeting, this can be arranged.

Best Regards

Candice Van Wyk

Sales and Marketing

Tel: +27 11 467 2609

Cell: +27 72 219 3386

Email: [candice@southernmapping.com](mailto:candice@southernmapping.com)

Website: <http://www.southernmapping.com>



EIA AND EMP FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Public Participation Office



Andrea Gibb / Lynsey Rimbault  
 SiVEST Environmental  
 PO Box 2921, RIVONIA, 2128  
 Tel (011) 798 0600  
 Fax (011) 803 7272  
 Email andreag@sivest.co.za /  
 lynseyr@sivest.co.za

**REGISTRATION AND COMMENT FORM**

Accompanying Background Information Document: 1 December 2015



Please complete and return by post, fax or e-mail to the Public Participation Office (as above)

TITLE	Miss	FIRST NAME	Cordice
INITIALS	CM	SURNAME	Von Wyk
ORGANISATION	Southern Mapping	EMAIL	Cordice@southernmapping.com
POSTAL ADDRESS	39 Linford Drive Fairways		
		POSTAL CODE	2095
TEL NO	011 467 2609	FAX NO	011 467-3443

**REGISTRATION AS INTERESTED AND/OR AFFECTED PARTY (I&AP) (please circle applicable box)**

Please formally register me as an interested and affected party (I&AP) so that I may receive further information and notifications during the EIA process	<input checked="" type="radio"/> YES	<input type="radio"/> NO
In terms of GNR 982 (2014 EIA regulations) I disclose below any direct business, financial, personal or other interest that I may have in the granting or rejection of the application for environmental authorisation (please use separate sheets if you wish):		
Aerial Survey & Satellite Imagery Company		

**COMMENTS** (please use separate sheets if you wish)

I suggest that the following issues of concern be investigated in the EIA:

- Proposed Management in terms of Project
- encroachment
- subsidence + later plans

I suggest the following for the EIA process and / or the public participation process:

Any other comments:

We (Southern Mapping) are a leading aerial survey company who use remote sensing technologies operating across Africa. We specialise in High Accuracy LiDAR, Hyperspectral & Thermal Imagery. We produce high quality maps including orthophotos & DTM's

Please contact the following colleagues/friends to register as I&APs for this EIA (name and contact details e.g. e-mail address):

Cordice@southernmapping.com

\_\_\_\_\_  
 Signature

THANK YOU FOR YOUR CONTRIBUTION

23 March 2016  
 \_\_\_\_\_  
 Date

## Andrea Gibb

---

**From:** Andrea Gibb  
**Sent:** Tuesday, January 12, 2016 6:58 AM  
**To:** 'phutieagae@subsolar.co.za'  
**Cc:** berlijn@subsolar.co.za; 'Candice'; Lynsey Rimbault  
**Subject:** RE: Request for electronic copies

Hi Claire

As requested, we will post a CD containing the Draft Scoping Reports to the PO Box address provided below in your email signature.

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- browse to the folder '13303 Sendawo PV Energy Development'
- browse to the folder '13303 Tlisitseng PV Energy Development'

Kind Regards

**Andrea Gibb** (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management)  
Environmental Practitioner and Visual Specialist  
**SiVEST Environmental Division**



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email [andrea@zivest.co.za](mailto:andrea@zivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)



**Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners**  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

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**From:** phutieagae@subsolar.co.za [mailto:phutieagae@subsolar.co.za]  
**Sent:** Monday, January 11, 2016 2:05 PM  
**To:** Andrea Gibb <AndreaG@zivest.co.za>  
**Cc:** berlijn@subsolar.co.za; 'Candice' <pillay@subsolar.co.za>; Lynsey Rimbault <LynseyR@zivest.co.za>  
**Subject:** Request for electronic copies

Good day Ms. Gill

Subsolar Energy (Pty) Ltd, hereby requests electronic copies of the Draft Scoping Reports for the Three Proposed Sendawo Solar Photovoltaic Energy Facilities and the associated powerline.

Looking forward to your positive response,

With kind regards,

Ms. Claire Phutieagae-Top  
Project Manager

Phone: +27 79 822 2455

Mobile: +27 74 655 7450  
Fax: +27 862 731 614

2nd Floor West Tower  
Nelson Mandela Square  
Maude Street, Sandown

PO Box 785553, Sandton, 2146



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## Andrea Gibb

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**From:** Andrea Gibb  
**Sent:** Friday, January 15, 2016 8:00 AM  
**To:** 'Neil Faber'  
**Cc:** Lynsey Rimbault  
**Subject:** RE:

Hi Neil

The project is still in the early planning phases and we have been appointed to undertake the Environmental Impact Assessment (EIA) for the proposed Sendawo Solar Energy Facilities near Vryburg. Once this process is complete and an Environmental Authorisation has been issued, the developer will still need to apply for a license from the Department of Energy and obtain all other permits and licenses before construction can commence.

As such, construction is unlikely to commence for a number of years still.

Kind Regards

**Andrea Gibb** (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management)  
Environmental Practitioner and Visual Specialist  
**SIVEST Environmental Division**



*SIVEST is a Level 3 BBBEE Contributor*

**Direct** +27 11 798 0638 **Tel** +27 11 798 0600 **fax** +27 11 803 7272 **cell** +27 72 587 6525  
**email** [andrea@sivest.co.za](mailto:andrea@sivest.co.za) **website** [www.sivest.co.za](http://www.sivest.co.za)



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**Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners**  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

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**From:** Neil Faber [mailto:neilfabar@gmail.com]  
**Sent:** Thursday, January 14, 2016 4:51 PM  
**To:** Andrea Gibb <AndreaG@sivest.co.za>  
**Subject:**

Good day Andrea

When is building going to start on the solar project at Vryburg?

I see you have a poster at the door at the library

Thank you

Regards

Neil

## Lynsey Rimbault

---

**From:** Lynsey Rimbault  
**Sent:** 19 January 2016 14:46  
**To:** 'phutieagae@subsolar.co.za'; Andrea Gibb  
**Cc:** berlijn@subsolar.co.za; 'Candice'  
**Subject:** RE: Request for electronic copies  
**Attachments:** Socio Economic Report.pdf

Hi Claire,

Thanks for letting us know, I have attached the correct Socio-Economic report here and am in the process of correcting it on the website.

Kind Regards  
Lynsey

**Lynsey Rimbault** (B.Sc.(Hons) Geography; M.Sc. Biodiversity, Conservation and Management)  
Environmental Consultant  
**SiVEST Environmental**



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Direct +27 11 798 0631 Tel +27 11 798 0600 fax +27 11 803 7272 cell +27 82 669 9558  
email [lynsey@sivest.co.za](mailto:lynsey@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)



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**Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners**  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

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**From:** phutieagae@subsolar.co.za [mailto:phutieagae@subsolar.co.za]  
**Sent:** 19 January 2016 14:34  
**To:** Andrea Gibb <AndreaG@sivest.co.za>  
**Cc:** berlijn@subsolar.co.za; 'Candice' <pillay@subsolar.co.za>; Lynsey Rimbault <LynseyR@sivest.co.za>  
**Subject:** RE: Request for electronic copies

Hi Andrea,

I am going through your specialist reports for the scoping which I have downloaded from sivest website. There is no socio-economic report. The heritage report has been saved twice, under Heritage and also under socio-economic. Can you please email me the socio-economic report?

Regards,  
Claire

---

**From:** Andrea Gibb [mailto:AndreaG@sivest.co.za]  
**Sent:** 12 January 2016 06:58 AM  
**To:** [phutieagae@subsolar.co.za](mailto:phutieagae@subsolar.co.za)  
**Cc:** [berlijn@subsolar.co.za](mailto:berlijn@subsolar.co.za); 'Candice'; Lynsey Rimbault  
**Subject:** RE: Request for electronic copies

Hi Claire



As requested, we will post a CD containing the Draft Scoping Reports to the PO Box address provided below in your email signature.

Please note that the reports are also available on our website <http://www.sivest.co.za/>, click on 'Downloads' then;

- browse to the folder '13303 Sendawo PV Energy Development'
- browse to the folder '13303 Tlisitseng PV Energy Development'

Kind Regards

**Andrea Gibb** (B.Sc. Landscape Architecture; B.Sc.(Hons) Environmental Management)  
Environmental Practitioner and Visual Specialist  
**SiVEST Environmental Division**



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**Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners**  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

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**From:** [phutiegae@subsolar.co.za](mailto:phutiegae@subsolar.co.za) [<mailto:phutiegae@subsolar.co.za>]  
**Sent:** Monday, January 11, 2016 2:05 PM  
**To:** Andrea Gibb <[AndreaG@sivest.co.za](mailto:AndreaG@sivest.co.za)>  
**Cc:** [berlijn@subsolar.co.za](mailto:berlijn@subsolar.co.za); 'Candice' <[pillay@subsolar.co.za](mailto:pillay@subsolar.co.za)>; Lynsey Rimbault <[LynseyR@sivest.co.za](mailto:LynseyR@sivest.co.za)>  
**Subject:** Request for electronic copies

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With kind regards,

Ms. Claire Phutiegae-Top  
Project Manager

Phone: +27 79 822 2455  
Mobile: +27 74 655 7450  
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## Lynsey Rimbault

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**From:** Lynsey Rimbault  
**Sent:** 12 April 2016 13:51  
**To:** 'Claire Threadingham'  
**Subject:** RE: Three Sendawo 75Mw Solar Energy facilities and associated substation and power Line, Vryburg, North West  
**Attachments:** 13033 BID SENDAWO.PDF

Dear Claire,

Thank you for your email, you have been registered as an I&AP. Please see attached the BID. Due to size constraints it will not be possible to email four Sendawo DSRs, however they are available on our website at <http://www.sivest.co.za/Download>.

Please let me know if there is any other information you require.

Kind Regards  
Lynsey

**Lynsey Rimbault** *(B.Sc.(Hons) Geography; M.Sc. Biodiversity, Conservation and Management)*  
Environmental Consultant  
**SiVEST Environmental**



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---

**Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners**  
Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

---

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**From:** Claire Threadingham [mailto:ClaireT@L2B.co.za]  
**Sent:** 10 March 2016 15:21  
**To:** Andrea Gibb <AndreaG@sivest.co.za>; Lynsey Rimbault <LynseyR@sivest.co.za>  
**Subject:** Three Sendawo 75Mw Solar Energy facilities and associated substation and power Line, Vryburg, North West

Good day,

I hope you are well.

Please may I register as an I&AP for this development and also request a copy of the BID and Draft Scoping Report.

Looking forward to hearing from you.

Kindest regards

Claire Threadingham  
Regional Content Researcher  
Private Projects

Leads 2 Business ([www.L2B.co.za](http://www.L2B.co.za))

Tel: 0860 836337

0860 TENDER

Fax: 033 3435882

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**Appendix 5E:  
Comments and Response Report**



**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)**

**COMMENTS AND RESPONSES REPORT – FINAL SCOPING REPORT**

**PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO SOLAR PHOTOVOLTAIC (PV)  
ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR  
VRYBURG, NORTH WEST PROVINCE**

**SUMMARY OF ENVIRONMENTAL ISSUES/CONCERNS AND SUGGESTIONS RAISED BY INTERESTED  
AND/OR AFFECTED PARTIES (I&APS)**

**DECEMBER 2015 – FEBRUARY 2016**

Stakeholders who contributed issues ranging across all sectors of society are recorded in this Comments and Responses Report (C&RR). Full record of every issue raised is available from the public participation office and is also included in Appendix 7D of the Final Scoping Report. Similar issues raised have been grouped together. The name, affiliation and date of the commentator are also indicated. Technical comments made by the project team are not included in the C&RR.

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**INDEX TO ISSUES IN THIS TABLE**

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**ABBREVIATIONS**

<b>ATNS</b>	Air Traffic Navigation Services
<b>EIA</b>	Environmental Impact Assessment
<b>EMPr</b>	Environmental Management Programme
<b>EWT</b>	Endangered Wildlife Trust
<b>PV</b>	Photovoltaic
<b>REIPPPP</b>	Renewable Energy Independent Power Producer Procurement Programme
<b>SACAA</b>	South African Civil Aviation Authority



ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Environmental Impact Assessment – Scoping Phase

Issue/Comment	Raised By	Response
<b>1. Infrastructure in the Area Related Comments/Issues</b>		
<p>Eskom provided their requirements for work at or near Eskom infrastructure. For full details of the requirements, refer to Appendix 7D. They also requested copies of all documents on CD via registered mail.</p>	<p>John Geeringh Eskom GC: Land Development Email: 11 January 2016</p>	<p>Eskom's requirements will be included in the Environmental Management Programme (EMPr) to ensure that any development at or near Eskom infrastructure will adhere to the prescribed requirements. The CD containing all relevant documents was sent to Eskom via registered mail. <b>Rebecca Thomas, SiVEST</b></p>
<p>Mr Schutte advised SiVEST that Telkom SA SOC Ltd approves the proposed work indicated on your drawings in terms of Section 23 of the Electronic Communications Act No.36 of 2005 as amended. Also, any changes / deviations from the original planning during or prior to construction must immediately be communicated to their office. Telkom furthermore grants approval subject to conditions provided per their attached drawing.</p>	<p>Chris Schutte Telkom Email: 18 January 2016</p>	<p>The comments from Telkom are noted, and they will continue to be kept informed as the project progresses. All relevant technical details will be provided to Telkom prior to the start of construction. <b>Rebecca Thomas, SiVEST</b></p>
<p>Mr Roberts acknowledged receipt of the Draft Scoping Report and advised SiVEST that the SACAA will be providing comment on the planned project following review of the information provided. He stated that an assessment of the project is required, particularly with regard to possible impact on aviation and the inclusion of associated infrastructure into databases maintained recording possible obstacles to aviation. He requested for SiVEST to provide SACAA with kml (Google Earth) files reflecting the footprint of the proposed development site including the proposed overhead electric power line route that will evacuate the generated power to the national grid. He further indicated that there may be several other projects within the area and it is therefore requested that SiVEST use the unique project name in all future correspondence, ensuring this is within the subject box when corresponding via email. He also requested SiVEST to provide the name and address which should appear on the CAA approval / decline letter.</p>	<p>Harry Roberts South African Civil Aviation Authority (SACAA) Email: 11 February 2016</p>	<p>The comments from SACAA are noted, and they will continue to be kept informed as the project progresses making sure to reference the project accordingly. SiVEST provided Mr. Roberts with the Google Earth files and details to be provided on the letter of approval / rejection accordingly. <b>Rebecca Thomas, SiVEST</b></p>
<p>Air Traffic Navigation Services (ATNS) stated that a PV project at the proposed project site location falls within the Annex 14 surfaces for Vryburg private airfield and they requested that they be kept informed</p>	<p>Simphiwe Masilela ATNS Email: 12 February 2016</p>	<p>The comments from ATNS are noted, and they will continue to be kept informed as the project progresses. All relevant technical details will be provided to ATNS prior to the start of construction.</p>

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Environmental Impact Assessment – Scoping Phase

Issue/Comment	Raised By	Response
if the development changes. ATNS also commented that they will duly conduct the Annex 14 assessment as required when the project is ready for construction, which will incur a fee.		<b>Rebecca Thomas, SiVEST</b>
<b>2. Communication Related Comments/Issues</b>		
Telkom acknowledged receipt of the report and requested SiVEST to please quote CVR+0013-15 for all future correspondence relating to the project.	Chris Schutte Telkom Email: 06 January 2016	Mr Masipa's comments are noted and Telkom will continue to receive updates and invitations to comment as the project progresses, using the reference number as provided. <b>Rebecca Thomas, SiVEST</b>
Ms April informed SiVEST that her colleagues Mr Masipa and Mr Govender are the relevant contact people at the Department of Energy.	Lerato April Department of Energy Email: 10 February 2016	Ms April's comment is noted and all future communication with the Department of Energy will be with Mr Masipa and Mr Govender. <b>Rebecca Thomas, SiVEST</b>
<b>3. Project Related Comments/Issues</b>		
The Dr Ruth Segomotsi Municipality indicated that they have no objection to the project.	Ogone Mosiapo Dr Ruth Segomotsi Municipality Email: 11 February 2016	Mr Mosiapo's comments are noted and the Municipality will continue to receive updates and invitations to comment as the project progresses. <b>Rebecca Thomas, SiVEST</b>
Mr Masipa acknowledged receipt of the Draft Scoping Report and confirmed that the Department will be inviting Independent Power Producers to submit proposals under the REIPPPP during the second quarter of 2016. Mr Masipa stated that the Department has gone through the report and are satisfied with the contents. They would like to be kept informed as the project progresses.	Pheladi Masipa Department of Energy Email: 15 February 2016	Mr Masipa's comments are noted and the Department of Energy will continue to receive updates and invitations to comment as the project progresses. <b>Rebecca Thomas, SiVEST</b>
<b>4. Biodiversity Related Comments/Issues</b>		
The Endangered Wildlife Trust (EWT) stated that they have reviewed the Avifaunal Specialist Report and that they have no comments at this stage, but that they would like to be kept up to date with further correspondence on the project.	Lourens Leeuwner Endangered Wildlife Trust Email: 16 February 2016	EWT will continue to receive all project reports and updates. <b>Rebecca Thomas, SiVEST</b>

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Environmental Impact Assessment – EIA Phase

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)**

**COMMENTS AND RESPONSES REPORT – DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT**

**PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

**SUMMARY OF ENVIRONMENTAL ISSUES/CONCERNS AND SUGGESTIONS RAISED BY INTERESTED AND/OR AFFECTED PARTIES (I&APS)**

**FEBRUARY – JUNE 2016**

Stakeholders who contributed issues ranging across all sectors of society are recorded in this Comments and Responses Report (C&RR). Full record of every issue raised is available from the public participation office and is also included in Appendix 5D of the Draft Environmental Impact Assessment Report. Similar issues raised have been grouped together. The name, affiliation and date of the commentator are also indicated. Technical comments made by the project team are not included in the C&RR.

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**INDEX TO ISSUES IN THIS TABLE**

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**ABBREVIATIONS**

<b>ATNS</b>	Air Traffic Navigation Services
<b>DEA</b>	Department of Environmental Affairs
<b>DoE</b>	Department of Energy
<b>EA</b>	Environmental Authorisation
<b>EAP</b>	Environmental Assessment Practitioner
<b>EIA</b>	Environmental Impact Assessment
<b>EMPr</b>	Environmental Management Programme
<b>EWT</b>	Endangered Wildlife Trust
<b>FGM</b>	Focus Group Meeting
<b>PM</b>	Public Meeting
<b>PP</b>	Public Participation
<b>PV</b>	Photovoltaic
<b>SACAA</b>	South African Civil Aviation Authority

Issue/Comment	Raised By	Response
<b>1. Infrastructure Related Comments/Issues</b>		
<p>Enquired about the type of tower structure that would be used for the proposed power line.</p>	<p>Jaco Venter Agri North West FGM: 15 March 2016</p>	<p>The power line structures to be used will be determined by Eskom prior to the signing of the power purchaser agreement. Once avifaunal monitoring is done, the specialist will identify which sections of the power line will need to be fitted with perching devices, bird flight diverters etc. These are considered to be the mitigation measures for the potential death of vultures. All structures will therefore be Eskom approved and vulture friendly structures. <b>Irene Bezuidenhout, BioTherm Energy</b></p>
<p>It was enquired whether the power line corridor runs along the Taung road (N18) from the Mookodi Substation to the site?</p>	<p>Jaco Venter Agri North West FGM: 15 March 2016</p>	<p>This is correct. The corridor is proposed along the N18 for a short distance then it cuts across the N18 (if the power line is constructed on the eastern side of the N18) directly towards the application site. The power line servitude is not as wide as the corridor. The size of the power line corridor (500m) allows for the power line to be sited within the corridor so that it is appropriate in terms of landowners and environmental findings. Surface water features can therefore be avoided. The 500m corridor is being assessed at this stage. <b>Lynsey Rimbault, SiVEST</b></p>
<p>Raised concern regarding the power line corridor route alternatives being proposed. There is a landfill site and a poultry building that might fall within one of the proposed power line corridor alternatives. There is a possibility that the landfill site may be expanded in the future.</p>	<p>Arnold Maname Manager: Town Planning Division, Naledi Local Municipality FGM: 15 March 2016</p>	<p>The exact locations of the landfill site and poultry building will be plotted on the maps to investigate what possibilities are available to avoid these structures. <b>Lynsey Rimbault, SiVEST</b></p> <p>It was reiterated that the power line corridor is 500m wide in order to avoid structures (such as the landfill site and poultry building) when the route alignment for the power line is negotiated. It is standard Eskom practice not to construct a power line over existing structures but will rather go around it. <b>Nicolene Venter, PP Practitioner, Zitholele Consulting</b></p>
<p>Wanted to clarify whether the local municipality preferred the power line corridor aligned along the N18 as it avoids the landfill site and the poultry development.</p>	<p>Nicolene Venter PP Practitioner Zitholele Consulting FGM: 15 March 2016</p>	<p>Stated that this was correct, as it will reduce the compensation part of the servitude. <b>Arnold Maname, Naledi Local Municipality</b></p>

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Environmental Impact Assessment – EIA Phase

Issue/Comment	Raised By	Response
Enquired about the size of the power line servitude and how much land will be taken up by the servitude? This information will assist the Municipality to determine how much of the surrounding land will be available for agricultural purposes.	George Ramogogane Assistant Manager: Properties Naledi Local Municipality FGM: 15 March 2016	The registered servitude for the 400kV power line is generally 47m wide, and this width will be negotiated with the registered landowner and registered against his/her/their title deed. <b>Irene Bezuidenhout, BioTherm Energy</b>
A similar power line route was proposed by Eskom and it is believed that this power line route has been approved by the Municipality.	Arnold Maname Manager: Town Planning Division, Naledi Local Municipality FGM: 15 March 2016	The project team thanked the attendee for the information and the project team will obtain the necessary information to verify this information. <b>Lynsey Rimbault, SiVEST</b>
Ms Mafume is concerned that the proposed study area is passing under the newly built power line, she would like to find out if we already have the height of the proposed lines which will be connecting proposed PV to Mookodi substation.	Mamokete Mafume Eskom Email: 31 May 2016	The exact height of the power line towers will only be determined during the detailed design phase, once a power line corridor has been authorised by the Department of Environmental Affairs (DEA). However, at this stage it is proposed that the typical structure to be used for the power line would predominantly be the steel lattice tower type (518H and 518C) in combination with other towers. The height of the steel lattice towers will vary between approximately 26m and 28m. <b>Andrea Gibb, SiVEST</b>
<b>2. Communication Related Comments/Issues</b>		
Mr Geeringh requested to be sent a KMZ file of the proposed sites to check against their plans.	John Geeringh Eskom Email: 22 February 2016	SiVEST provided Mr Geeringh with the KMZ files as requested. <b>Lynsey Rimbault, SiVEST</b>
Please may I register as an I&AP for this development and also request a copy of the BID and Draft Scoping Report.	Claire Threadingham Leads 2 Business Email: 10 March 2016	Ms Threadingham's comment is noted and she has been registered as an I&AP on the project. A link to the project was sent to her so that she can access the reports. <b>Lynsey Rimbault, SiVEST</b>
Mr/Miss Maluleke sent a confirmation that the application to the department has been captured on their system. The AgriLand reference number is 2016_05_0166.	K Maluleka DAFF Email: 24 May 2016	DAFF's comments / confirmation have been noted. <b>Lynsey Rimbault, SiVEST</b>
<b>3. EIA Process Related Comments/Issues</b>		
Wanted to know why an EIA is being done i.e. what is the purpose of the EIA?	Tshepo Ivan Mogapi Huhudi Local Resident PM: 15 March 2016	An EIA is a legal requirement and is undertaken in order to assess the various impacts on the surrounding environment envisaged from a proposed project. No developments can be undertaken without doing

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Environmental Impact Assessment – EIA Phase

Issue/Comment	Raised By	Response
		<p>an EIA. An EIA is also done in order to allow stakeholders and members of the local community to participate in the process and to voice their concerns.</p> <p><b>Nicolene Venter, Zitholele Consulting</b></p>
<p>Wanted to know if there have been any objections to the proposed projects, because another renewable energy development in the area has been delayed due to issues with the public participation process undertaken. Emphasised the importance of following the correct procedures with regards the public participation process.</p>	<p>George Ramogogane Assistant Manager: Properties Naledi Local Municipality FGM: 15 March 2016</p>	<p>No negative comments/feedback or objections have been received to date and it was confirmed that the legislative process is being followed in terms of the public participation process.</p> <p><b>Nicolene Venter, Zitholele Consulting</b></p>
<p>Enquired as to who would be the responsible official at the Municipality for submitting written comments on the Environmental Impact Assessment Report.</p>	<p>Nicolene Venter PP Practitioner Zitholele Consulting FGM: 15 March 2016</p>	<p>Both Mpho Talane and Arnold Maname will be the responsible officials.</p> <p><b>Arnold Maname, Naledi Local Municipality</b></p>
<p>Enquired about the submission dates for the organs of state's written comments, and when should the comments be submitted by? Will SiVEST be communicating these dates to the organs of state?</p>	<p>Arnold Maname Manager: Town Planning Division Naledi Local Municipality FGM: 15 March 2016</p>	<p>Draft Minutes of the meeting will be sent to all the attendees and those who submitted apologies within the next few weeks. It is envisaged that the DEIARs will be sent by end of April 2016. Once the Reports have been sent there will be 30 days for the Organs of State to submit their written comments. SiVEST will notify the Organs of State and registered I&amp;APs of the availability of the draft Reports via e-mail. Link to the DEIARs will be included in the e-mail notification. A CD containing the DEIAR will also be sent to the Organs of State to facilitate the commenting process.</p> <p><b>Lynsey Rimbault, SiVEST</b></p> <p>Confirmed the feedback provided and add that SiVEST will be sending the Municipality a cover letter to the CD notifying them when the DEIARs are available as well as the review period dates. Two (2) e-mail reminders will be sent, one to be sent about a week before the comment and review period ends and the second to inform that the comment and review period has ended.</p> <p><b>Nicolene Venter, Zitholele Consulting</b></p> <p><b>Post Meeting Note:</b></p>

Issue/Comment	Raised By	Response
		The DEIAr comment period will be from the 10 <sup>th</sup> of June 2016 until the 11 <sup>th</sup> of July 2016. Naledi Local Municipality will be notified of this accordingly.
It was advised that BioTherm should not follow the re-zoning process. If the re-zoning process for the property is followed the agricultural rights will be taken away and this is not favourable as the land can therefore not be used for anything else should the solar facility reach the end of its life span. It is recommended that BioTherm apply for an additional Land-use Right (i.e. apply for a secondary use as opposed to re-zoning). This way the property still maintains its agricultural right.	Arnold Maname Manager: Town Planning Division Naledi Local Municipality FGM: 15 March 2016	The attendee was thanked for the advice and recommendation and confirms that BioTherm are planning on doing so. <b>Daniel Lowings, BioTherm Energy</b>
<b>4. Project Related Comments/Issues</b>		
Wanted to know whether the project will be on Eskom property, connected to Eskom power lines and whether the project is an Eskom initiated project.	Gomotsegang Sojanja Huhudi Local Resident PM: 15 March 2016	The proposed project will be developed and operated on private property. <b>Nicolene Venter, Zitholele Consulting</b>  The electricity generated will connect into Eskom's existing Mookodi Substation and Eskom will buy the power generated by the solar plant from BioTherm. Eskom will then distribute the electricity through their electricity network. <b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b>
Enquired where BioTherm is based.	Charles Otletseng Managing Director Boka Baby Electricity & Projects PM: 15 March 2016	BioTherm is based in Fourways, Johannesburg <b>Irene Bezuidenhout, BioTherm Energy</b>
Enquired who the stakeholders are for the proposed development.	Thabo Mosimanyane Huhudi Local Resident PM: 15 March 2016	BioTherm Energy is the applicant proposing the development, and they appointed SiVEST as the independent EAP to undertake the environmental studies. The DEA is the competent authority who will be making the decision with regards to granting or refusing an authorisation for the proposed development. The DEA needs to make an informed decision regarding a proposed development and therefore require input from the community members. <b>Nicolene Venter, Zitholele Consulting</b>



ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Environmental Impact Assessment – EIA Phase

Issue/Comment	Raised By	Response
Enquired about the life span of the solar plant.	George Ramogogane Assistant Manager: Properties Naledi Local Municipality FGM: 15 March 2016	Usually around 20-25 years. The solar panels will however last longer than that. A re-assessment is done after the 20-25 years in order to determine whether the plant should continue to operate. If it is deemed that that the solar plant will no longer continue to operate after 20-25 years, it will be demolished and rehabilitated. <b>Daniel Lowings, BioTherm Energy</b>
SMC's would like to offer their services in regards Satellite and LiDAR surveys which may be requires in the establishment of the power line and solar facilities	Candice van Wyk Southern Mapping Company (SMC) Email: 23 March 2016	SMC's comments have been noted, however the project is still in the early planning stages and will not be constructed, until it receives an Environmental Authorisation (EA) and is awarded preferred bidder status form the Department of Energy (DoE). <b>Lynsey Rimbault, SiVEST</b>
When will BioTherm be submitting their planning application with regards to land-use change for the proposed property?	Arnold Maname Manager: Town Planning Division Naledi Local Municipality FGM: 15 March 2016	The land-use change application will be applied for after the project receives environmental authorisation. As soon as authorisation is granted this application process will be initiated. <b>Irene Bezuidenhout, BioTherm Energy</b>
Is this the same project that is being proposed on the Tiger Kloof Educational Centre (Farm Waterloo)? There is another project in the same area of which a similar presentation was made to the Municipality and a similar power line corridor is being proposed. It is recommended that the team laisse with Eskom to see what other projects are being proposed or have been approved in order to get a better idea of which power line corridor would be feasible.	Arnold Maname Manager: Town Planning Division Naledi Local Municipality FGM: 15 March 2016	The Tiger Kloof Educational Centre renewable energy project is a separate project. The DEIAR will include a Cumulative Impact Section which looks at all the other projects being proposed within close proximity of this proposed development and will includes a map showing all projects that have been authorised and are being proposed in the study area. <b>Lynsey Rimbault, SiVEST</b>
<p>Asked whether SiVEST and/or BioTherm have received any shapefiles from the municipality indicating existing infrastructure?</p> <p>Are the landfill site and poultry building a Naledi Local Municipality initiative or is it a private initiative?</p>	Nicolene Venter PP Practitioner Zitholele Consulting FGM: 15 March 2016	<p>No shapefiles were provided to date. <b>Lynsey Rimbault, SiVEST</b></p> <p>The poultry farm was initiated by the Department of Rural Development as well as the Department of Agriculture. The ownership of the property has since been transferred to the Municipality and is currently managed by the local municipality. <b>Arnold Maname, Naledi Local Municipality</b></p>
Enquired about the planned date for construction.	Jaco Venter	If everything goes according to plan i.e.:

Issue/Comment	Raised By	Response
	<p>Agri North West FGM: 15 March 2016</p>	<ul style="list-style-type: none"> <li>- Authorisation granted by October 2016;</li> <li>- Another 6 months is then required for permitting and approval purposes;</li> <li>- If project wins IPP Bid Submission in August 2017 another year is needed to financial closure, which could take up to a year;</li> <li>- Construction can start 6 months after power purchase agreement is signed</li> </ul> <p>If project wins in next bidding round the proposed projects will be operational by 2019. Projects might be re-bid several times, or could not be a preferred bidder at all.</p> <p><b>Irene Bezuidenhout, BioTherm Energy</b></p>
<b>5. Avifauna Related Comments/Issues</b>		
<p>Enquired about the relevance of vultures with regards to impacted bird species in the study area as they were not mentioned in the presentation although there are vultures present in the study area.</p>	<p>Jaco Venter Agri North West FGM: 15 March 2016</p>	<p>The presentation was a summary of the key findings as documented in the specialist's report, therefore not all the specialist's finding could be included in the presentation. The full list of potentially affected bird species will be included in the avifaunal report that forms part of the DEIRs.</p> <p><b>Lynsey Rimbault, SiVEST</b></p> <p><b>Post Meeting Note:</b> Cape Vultures and White Backed Vultures are both identified in the avifaunal specialist reports as species that could potentially be affected by the proposed projects, and the potential impact on these species was assessed. Any required mitigation measures will be incorporated into the final layout design and will be included in the EMPr.</p>
<p>Stated that they do not believe that the bird friendly structures are effective. The power line structures that currently kill vultures are the Eskom bird friendly ones. Stated that the Farmers' Union would therefore like to know the type of structure and what it looks like so that they can agree with it or not.</p>	<p>Jaco Venter Agri North West FGM: 15 March 2016</p>	<p>The power line which will link the development to the Mookodi MTS will be 400kV. 132kV power lines will be used on site to transport the power from the solar panels to the internal/on-site substation. The proposed power line towers will consist of monopole structures for the 132kV power lines (internal connection) and lattice structures for the 400kV power line.</p>

Issue/Comment	Raised By	Response
		<p><b>Irene Bezuidenhout, BioTherm Energy</b></p> <p>It was agreed that drawings or pictures of the typical proposed power line tower structures will be attached to the draft minutes (if these are available).</p> <p><b>Nicolene Venter, Zitholele Consulting</b></p> <p>The EIA and bird specialist reports will also be sent to Birdlife and the EWT for review and commenting purposes.</p> <p><b>Lynsey Rimbault, SiVEST</b></p>
<b>6. Agriculture Related Comments/Issues</b>		
<p>It was enquired as to whether the reflection off the solar panels would scare animals away and if visual impact of the panels would have an impact on the reproduction of livestock. He was particularly concerned about buffalo, other game and the less docile cattle species that are farmed in the area.</p>	<p>Jaco Venter Agri North West FGM: 15 March 2016</p>	<p>The team is not aware of any study that has found impacts of solar panels on livestock reproduction. The impact of wind turbines on livestock has been investigated, but solar panels are stationary and not likely to affect animals on neighbouring farms. The main way the solar panels could affect livestock is by taking up grazing land. The property being proposed for the projects is a game farm. Animals will need to be moved off the site where the solar panels will be placed.</p> <p><b>Lynsey Rimbault, SiVEST</b></p> <p>BioTherm currently have fixed panel operational facilities and there has been no evidence that animals are being scared away. Sheep still graze around the panels. Wild animals have been seen in close proximity to the facility on the security cameras which have been placed on the perimeter of the facility.</p> <p><b>Irene Bezuidenhout, BioTherm Energy</b></p> <p>In Europe sheep are actually placed inside the site that contains the solar panels so that they can graze on the vegetation under the panels.</p> <p><b>Daniel Lowings, BioTherm Energy</b></p>
<p>The main concern regarding the reflection is on wild animals and certain livestock (such as Bramaan and Nguni cattle) which require quiet environments and are more easily frightened. It was requested that this</p>	<p>Jaco Venter Agri North West FGM: 15 March 2016</p>	<p>SiVEST is not aware of evidence of impacts of this nature, but the Biodiversity and Agricultural specialists will be consulted to enquire whether they can conduct a general research on the topic.</p>

Issue/Comment	Raised By	Response
<p>impact to be investigated properly before the project is implemented in order to avoid any future problems.</p>		<p><b>Lynsey Rimbault, SiVEST</b></p> <p><b>Post Meeting Note:</b>                      The concern was forwarded to the biodiversity specialist who indicated that he had never heard of solar panels affecting reproduction or calving in buffalos. It is likely that the panels would have the same effect as a dam or other body of water that is reflective. A general internet search did not yield any evidence of panels affecting buffalo or cattle. To his knowledge, there is no proof in existence that solar panels have this effect. In the event that there are legitimate issues relating to this effect, the solution would be to screen the boundaries of the solar installation with some sort of visual barrier that would block any glare or reflection. This would only be necessary on the side of the solar installation towards which the panels are facing.</p> <p><b>David Hoare, Biodiversity Specialist</b></p>
<p>The concern regarding veld fires was raised and it was requested that the developer give assurance that no veld fires will be caused during the construction phase. The farmers struggle to get veld fires under control due to the type of vegetation present. It was enquired as to how the Sendawo PV site be managed/maintained in order to prevent veld fires.</p>	<p>Jaco Venter                      Agri North West                      FGM: 15 March 2016</p>	<p>Fire management measures are covered in the draft EMPr. The draft EMPr will be available for review when the DEIARs are made available.</p> <p><b>Lynsey Rimbault, SiVEST</b></p> <p>There will be a fire-prevention procedure in place during construction and fire detection and fire protection procedures present during the operation and maintenance (O&amp;M) phase. Fire suppression systems can also be implemented on site. Nothing has however been approved yet as the project is still in the design phase.</p> <p><b>Daniel Lowings, BioTherm Energy</b></p>
<p><b>7. Socio-Economic Related Comments/Issues</b></p>		
<p>Mr Otletseng enquired whether BioTherm have a Social Development Programmes in place.</p>	<p>Charles Otletseng                      Managing Director                      Boka Baby Electricity &amp; Projects                      PM: 15 March 2016</p>	<p>In terms of this proposed project the following is envisaged for the surrounding community during the construction and operation phases:</p> <ul style="list-style-type: none"> <li>• <u>Job creation – requirements in terms of the Department of Energy (DoE):</u> <ul style="list-style-type: none"> <li>○ appointing South African citizens;</li> </ul> </li> </ul>

Issue/Comment	Raised By	Response
		<ul style="list-style-type: none"> <li>○ appoint both black and white individuals, however BioTherm will only receive points for black individuals;</li> <li>○ appointing of skilled black individuals; and</li> <li>○ appointing of individuals from the <u>local</u> community which must be a large percentage of the workforce.</li> <li>● <u>Social Development Plans:</u> <ul style="list-style-type: none"> <li>○ the DoE requires BioTherm to use a percentage of the money earned to commit to social economic development and enterprise development. This will be done for a maximum of 50km radius from where the project site is located. Huhudi falls within this 50km radius;</li> <li>○ Socio economic development will include the social programmes that BioTherm would have planned for in consultation with the local community , the Naledi Local Municipality’s Integrated Development Plan (IDP), and the National Development Plan (NDP);</li> <li>○ If BioTherm have been awarded preferred bidder status and have won the tender, the process of assessing what the local community needs and what social projects to implement can start. This will be done in consultation with the existing community structures within the 50km radius. Social projects referred to could include plans such as the upgrade and/or development of clinics, hospitals, schools etc.</li> <li>○ Enterprise development will occur once the project is operational and BioTherm are earning money. This includes opportunities such as mentorship for local business members who are in need of such mentoring.</li> <li>○ Community ownership. Currently the DoE wants all renewable energy projects to register a Community Trust. This is for the benefit and social upliftment of the local communities. However, there is a possibility that this obligation is going to fall away within the next couple of years (This could therefore change in the future).</li> </ul> </li> </ul>

Issue/Comment	Raised By	Response
<p>Enquired about BioTherm's plans for small and medium enterprises (SMEs) in the area.</p>	<p>Charles Otletseng Managing Director Boka Baby Electricity &amp; Projects PM: 15 March 2016</p>	<p><b>Thulani Koom, BioTherm Energy</b></p> <ul style="list-style-type: none"> <li>BioTherm are required to procure from BBBEE suppliers, Qualified Small Enterprise (QSE) suppliers, Exempted Micro Enterprise (EME) suppliers, and woman owned vendors. Women owned vendors are companies owned by women with a 50% or more ownership in the business;</li> <li>Local community members will have opportunities with regards to job creation and procurement. For example, individuals with catering companies can supply construction workers with food, owners of guest houses in the area can provide accommodation for individuals working on the project or job seekers, etc.); These opportunities will only arise if BioTherm start construction and not before. The attendees were cautioned not to start spending money and investing in businesses etc. at this stage as the project might not receive authorisation;</li> <li>Technical companies (such as an electrical or metal) could be provided with opportunities to participate in various activities on the solar plant site. The above-mentioned opportunities are however not specific to SMEs. They are only specific to BBBEE compliant suppliers, QSE and EME suppliers, and women owned vendors. These are the three categories that BioTherm need to focus on;</li> </ul> <p><b>Thulani Koom, BioTherm Energy</b></p>
<p>Mr Mosimanyane raised concern about the skilled labourers that will need to be hired during construction. Not many individuals in the community are skilled and are not provided with opportunities to become skilled due to lack of schooling, etc.</p> <p>Are BioTherm proposing any way to approach the local community prior to employment opportunities in order to provide them with training to become skilled? This will benefit the community members not only for this project but also in the future.</p>	<p>Thabo Mosimanyane Huhudi Local Resident PM: 15 March 2016</p>	<p>Currently, BioTherm (or any developer) can only spend money on uplifting communities during operation. The general problem experienced is the sourcing of skilled local labour in areas with mostly unskilled residents. BioTherm are often ultimately forced to look outside the rural areas for skilled labour when they cannot find these individuals. This is a fatal flaw within the programme and this matter is currently being discussed with the DoE, as it is a reality that people on the ground are not benefiting from these projects in the early stages of a project. DoE is therefore looking at changing a few requirements.</p>

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES AND THE ASSOCIATED 400KV SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

Environmental Impact Assessment – EIA Phase

Issue/Comment	Raised By	Response
		<p>For now, BioTherm can only do something for the larger community once a project generates an income.</p> <p>There are a number of construction companies or sub-contractors that do provide training before construction starts, but the team present cannot commit to this as this is not how the process is currently structured.</p> <p>BioTherm want to encourage the youth to try and educate themselves as much as possible for future projects. This will provide them with more employment and upliftment opportunities in the future.</p> <p><b><i>Thulani Koom, BioTherm Energy</i></b></p>







**Appendix 5F:  
I&AP Database**



<b>PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE</b>		
<b>EIA PHASE I&amp;AP DATABASE</b>		
<b>JUNE 2016</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Company</b>
Nicole	Abrahams	SANRAL
Marlaine	Andersen	Leads 2 Business
A	Appolus	Naledi Local Municipality
Lerato	April	Department of Energy
	Berlijn	Subsolar Energy (Pty) Ltd
Thoko	Buthelezi	Dept of Agriculture, Forestry & Fisheries
Eunice	Buthelezi	Telkom SA SOC Limited
Jones	Chisekula	Naledi Local Municipality
Anneliza	Collett	Department of Agriculture, Forestry & Fisheries
Tsholofelo	Dintwe	North West Dept of Rural, Environment and Agricultural
Shaun	Dyers	SANRAL Western Region
Suzanne	Erasmus	WESSA Northern Cape
Neil	Faber	
Sam	Fiff	Transnet Freight Rail (Jhb)
Simon	Gear	Birdlife South Africa
John	Geeringh	Eskom: Transmission
Theo	Geldenhuys	
David	Gopane	Telkom SA SOC Limited
Morgan	Griffiths	WESSA: Eastern Cape Province
Keobome	Kehositse	Dr Ruth Segomotsi Mompoti District Municipality
Mmusi	Kgomotso	Naledi Local Municipality
Nokukhanya	Khumalo	SAHRA
Johan	Koegelenberg	SENTECH
Ntsikelelo	Kubeka	Dr Ruth Segomotsi Mompoti District Municipality
Robert	Lecolo	
Edwin	Leepile	
Lourens	Leeuwner	EWT
Ohentse Ernest	Lekgwathi	
Seoka	Lekota	Department of Environmental Affairs
Thabang	Lencwe	
Silverster	Letimela	
Mike	Levington	Kabi Solar (Pty) Ltd
Mamokete	Mafume	Eskom Transmission
Alfred	Mafune	North West Department of Roads and Transport
Matshediso	Mahlaku	North West Department of Energy
Arnold	Manamela	Naledi Local Municipality
Mashudu	Marubini	DAFF Provincial Department
Kenneth	Maruping	
Simphiwe	Masilela	Air Traffic Navigation Services
Pheladi	Masipa	Department of Energy
Ntanganedzeni	Maumela	Department of Agriculture, Forestry & Fisheries
Doris	Maumela	Department of Water & Sanitation
Reinier	Minny	Naledi Local Municipality
Tshepo	Mogapi	
Lebogang	Moinwe	Naledi Local Municipality

Tsholofelo	Moleme	
Lorato	Moleme	
Johanna	Morobane	Air Traffic Navigation Services
Ogone	Mosiapo	Dr Ruth Segomotsi Mompoti District Municipality
Thabo	Mosimanyane	
Lutendo	Mphaphuli	
Mboyisi	Nombulelo	Naledi Local Municipality
Bakang	Ntlhaile	
Adele	Oberholzer	Edinburgh Trust
Charles	Otletseng	Boka Baby Electricity Projects
Marcus	Phaduli	G Ranmare Suppliers
Dineo	Phiri	
Claire	Phutieagae-Top	Subsolar Energy (Pty) Ltd
Candice	Pillay	Subsolar Energy (Pty) Ltd
Mmatlala	Rabothata	Department of Environmental Affairs
George	Ramogogane	Naledi Local Municipality
Harry	Roberts	SA CAA
Godfrey	Samore	Community Police Forum / LIBRARIAN
Chris	Schutte	Telkom SA SOC Limited
Modisenyane	Segapo	Naledi Local Municipality
Tumisang	Sekonelo	
Tshepo	Selotlego	
Tebogo	Sethosa	North West Department of Energy
Thabiso	Siti	
Tshepo	Sojanja	
Pholoso	Sojanja	
Gomotsegang	Sojanja	DPWR
Lizell	Stroh	SA Civil Aviation Authority
Pieter	Swart	Department of Mineral Resources
Mpho	Talane	Naledi Local Municipality
Claire	Threadingham	Leads 2 Business
	Tiger Kloof	TIGER KLOOF EDUCATIONAL INSTITUTION
Choanyetso	Tladinyane	Dr Ruth Segomotsi Mompoti District Municipality
Victor	Tlhabanelo	Dr Ruth Segomotsi Mompoti District Municipality
Gontseone	Tshegetso	
Benson T.	Tshegetso	Bensteb Trading (Pty) Ltd
Zebo	Tshetlho	Dr Ruth Segomotsi Mompoti District Municipality
Thabo	Tsimane	
Heleen	van den Heever	Telkom (SA) Ltd
Lucas	Van Dyk	
Nico	Van Rooyen	Remainer of Hartsboom No 734
Mamaki Yvonne	Van Wyk	
Candice	van Wyk	Southern Mapping Company
Jaco	Venter	Agri North West
Kobus	Visser	Agri SA
Salvation Matshepo	Voyi	
	Waterloo Ranches	WATERLOO RANCHES CC



## **Appendix 5G: Meeting Minutes**



**SiVEST**



**ENVIRONMENTAL IMPACT  
ASSESSMENTS FOR THE PROPOSED  
DEVELOPMENT OF THE THREE  
SENDAWO 75MW SOLAR  
PHOTOVOLTAIC ENERGY FACILITIES,  
AND THE ASSOCIATED SUBSTATION  
AND 400kV POWER LINE NEAR  
VRYBURG, NORTH WEST PROVINCE**

**MINUTES OF THE  
PUBLIC MEETING**

Held on  
Tuesday, 15 March 2016 at 19h00  
Huhudi Community Hall, Huhudi, Vryburg

North West Province

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**SiVEST Environmental (Pty) Ltd**

**Contact:** Lynsey Rimbault

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**Fax:** 011 803 7272

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**Draft Minutes prepared by:**

**Stephan Jacobs**

Please address any comments to Lynsey Rimbault at the above address

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## YOUR COMMENTS ON THE DRAFT MINUTES

Your comments on these draft Minutes will be appreciated. In particular, we request you to verify that your comments during the meeting have been minuted correctly. **It is important to note that the draft Minutes are not verbatim and any comments and questions raised by the technical specialists and the project proponent are not included in the discussion document.** Please address your comments, in writing (preferably email) to Lynsey Rimbault at the address given on the cover page on or before **Wednesday 11 May 2016**



## PUBLIC MEETING

**Venue:** Huhudi Community Hall, Huhudi, Vryburg  
**Date:** Tuesday, 15 March 2016  
**Time:** 19h00 – 20h30

### 1 WELCOME, INTRODUCTIONS

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Nicolene Venter welcomed everyone who attended the Public Meeting (PM) and thanked everyone for attending. She then proceeded to discuss the agenda of the meeting. Nicolene introduced herself and noted that Zitholele Consultants have been appointed by SiVEST to assist with the Public Participation Process (PPP) for the proposed projects. She requested that the representatives from SiVEST and BioTherm Energy who were present at the meeting could please introduce themselves and explain their roles with regards to the proposed projects. She explained the reason for having all of the representatives from SiVEST and BioTherm Energy present at the meeting. Nicolene asked the attendees to please ensure that they sign the attendance register as this will ensure that they are registered on the project database and those with an e-mail address will receive an electronic copy of the minutes. Where a cell phone number is provided, the attendees will receive future EIA related information via SMS. She also asked all of the attendees for permission to record the meeting and explained that it will be used for minute taking purposes. Permission was given by all of the attendees to record the meeting.

### 2 MEETING ATTENDEES

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The Public Meeting was attended members of the general public who are regarded as interested and Affected Parties (I&APs). Apologies were given for Hlengiwe Ntuli from SiVEST who was not able to attend the meeting. A copy of the Attendance Record is attached as **Annexure A**.

### 3 PURPOSE OF THE MEETING

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Nicolene Venter informed the attendees that the purpose of the Public Meeting was to:

- To provide an overview of the proposed projects;
- To provide feedback on the findings as documented in the EIA phase specialist reports;
- To provide an opportunity to raise comments and/or concerns regarding the proposed project; and
- To record comments, issues and concerns raised.

Nicolene informed all of the attendees that as an EIA process consist of a large number of abbreviations, that these would be used throughout the presentation after providing the full meaning of the abbreviation.

## **4 PROJECT CONTEXT AND OVERVIEW**

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Nicolene Venter presented an overview of the proposed project explaining the background to the project, what the project would entail, key environmental findings and the current status of the EIA process.

Refer to **Annexure B** for a copy of the presentation.

## **5 DISCUSSION SESSION AND QUESTIONS**

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Please refer to **Annexure C** for the discussion session.

## **6 CLOSURE AND WAY FORWARD**

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Nicolene Venter closed the meeting at approximately 20h30. She informed the attendees that the Public Meeting minutes, presentation, and attendance record would be forwarded to everyone who attended the meeting, those who submitted apologies and who's e-mail addresses were provided. As per the discussion document it was agreed that hard copies of the minutes and presentation will be made available at Huhudi Public Library.

## **Annexure A**

### **ATTENDANCE RECORD**

<b>SENDAWO SOLAR PROJECTS: PUBLIC MEETING ATTENDANCE RECORD</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Company</b>
Irene	Bezuidenhout	BioTherm Energy
Siphelele	Dunga	BioTherm Energy
Thulani	Koom	BioTherm Energy
Robert	Lecolo	
Edwin	Leepile	
Ohentse Ernest	Lekgwathi	
Thabang	Lencwe	
Silverster	Letimela	
Daniel	Lowings	BioTherm Energy
Kenneth	Maruping	
Tshepo	Mogapi	
Tsholofelo	Moleme	
Lorato	Moleme	
Thabo	Mosimanyane	
Lutendo	Mphaphuli	
Bakang	Ntlaile	
Charles	Otletseng	Boka Baby Electricity Projects
Marcus	Phaduli	G Ranmare Suppliers
Dineo	Phiri	
Tumisang	Sekonelo	
Tshepo	Selotlego	
Thabiso	Siti	
Tshepo	Sojanja	
Pholoso	Sojanja	
Gomotsegang	Sojanja	DPWR
Gontseone	Tshegetso	
Benson T.	Tshegetso	Bensteb Trading (Pty) Ltd
Thabo	Tsimane	
Mamaki Yvonne	Van Wyk	
Salvation Matshepo	Voyi	
Lynsey	Rimbault	SiVEST
Stephan	Jacobs	SiVEST
Nicolene	Venter	Zitholele Consulting


## **Annexure B**

**COPY OF PRESENTATION**

# ENVIRONMENTAL IMPACT ASSESSMENTS FOR THE PROPOSED DEVELOPMENT OF THE THREE SENDAWO 75MW SOLAR PHOTOVOLTAIC ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

DEA Ref. No.: SENDAWO GRID: 14/12/16/3/3/2/894  
 SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
 SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
 SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893

A PROFESSIONAL TEAM DELIVERING CREATIVE PROJECT SOLUTIONS



Consulting Engineers • Project Managers • Environmental Consultants • Town and Regional Planners

## PUBLIC MEETING


PRESENTATION DATE: 15 March 2016

## AGENDA




- Welcome, introduction and apologies
- Purpose and conduct of meeting
- Background to the proposed development
- Environmental process followed and findings
- Discussion session
- Closure

## CONDUCT OF MEETING




- Focus on issues relating to the EIAs
- Equal participation
- Identify yourselves
- Recorder
- Cell phone etiquette

## PURPOSE OF MEETING




- To provide an overview of the proposed project
- To provide feedback on the findings as documented in EIA phase specialist reports
- Provide an opportunity to raise comments and/or concerns regarding the proposed project
- To record comments, issues and concerns raised

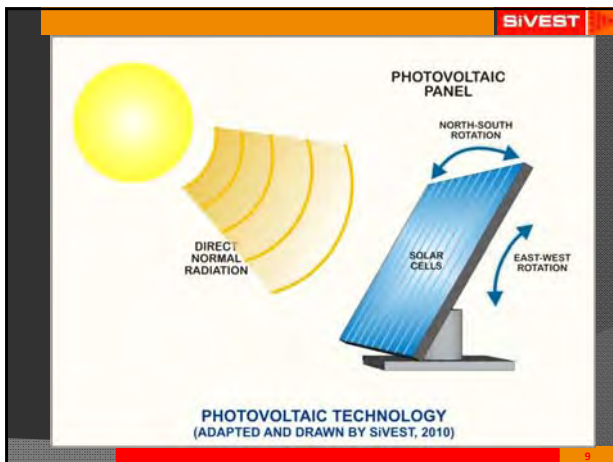
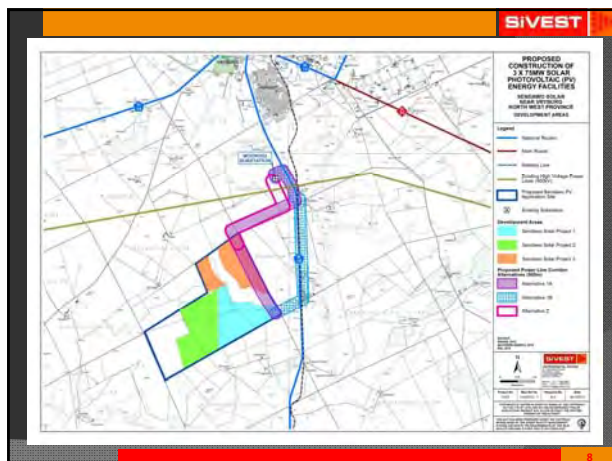
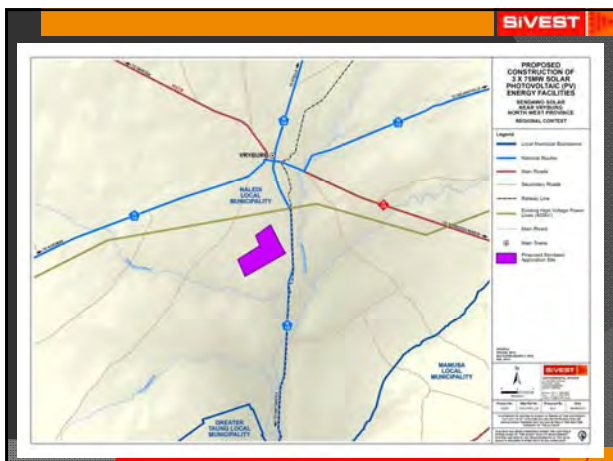
## PROJECT OVERVIEW



## PROJECT OVERVIEW

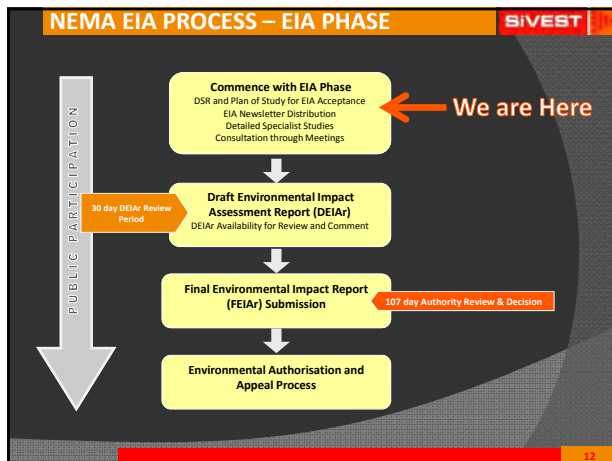
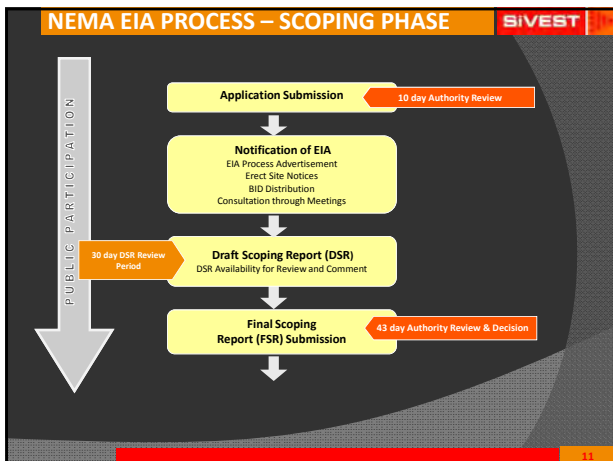


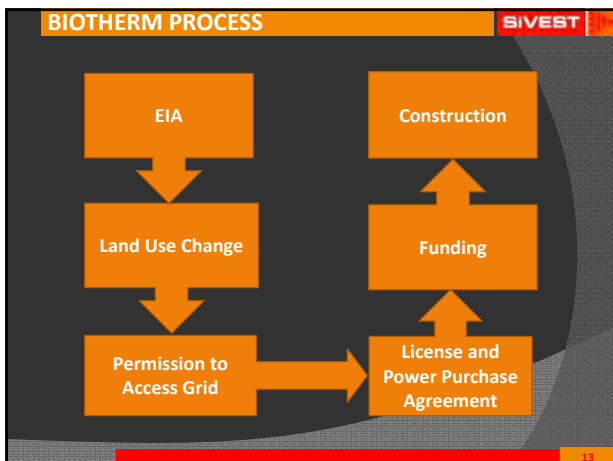
- **What does the proposed development entail?**
  - Construction of Sendawo 1, Sendawo 2 and Sendawo 3 Solar Photovoltaic (PV) energy facilities, each with a maximum generation capacity of 75MW.
    - Including associated infrastructure for each facility
      - New onsite substation
      - New power line from each PV facility to the Sendawo substation
      - Access road upgrades
      - Construction laydown area
      - Admin and warehouse building
  - Sendawo 400kV substation, and 400kV power line to connect the proposed substation to the existing Mookodi MTS
- **Why is the project being proposed?**
  - To generate electricity to feed into the national grid
  - Promote use of renewable energy
  - To help meet future energy consumption requirements



### PROJECT OVERVIEW

- Who is the independent EAP?**
  - SIVEST SA
- Why undertake an EIA?**
  - Legal requirement
  - Consider environmental impacts and mitigation measures
  - Provide stakeholders/I&APs the opportunity to participate
- Who is the applicant?**
  - BioTherm Energy
- Who is the decision-making authority?**
  - Department of Environmental Affairs (DEA)





### ENVIRONMENTAL FINDINGS



- ### ENVIRONMENTAL FINDINGS
- EIA phase underway
    - Rating of significance of impacts
    - Compliance with Equator Principles
    - Compliance with all National legislation
    - Comparative assessment of on site alternatives
    - Environmental Management Programme
  - Environmental aspects being assessed
    - Biodiversity (flora and fauna)
    - Avifauna
    - Surface Water
    - Soils and Agricultural Potential
    - Visual
    - Heritage and Palaeontology
    - Socio-economic

### BIODIVERSITY

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• Vegetation (Ghaap Plateaux Vaalbosveld) is classified as Least Threatened</li> <li>• However, Provincial Biodiversity Conservation Assessment identifies Critical Biodiversity Areas and Ecological Support Areas -&gt; buffer areas for pans, provincial corridor network and dolomite aquifer recharge zone.</li> <li>• Potential presence of:               <ul style="list-style-type: none"> <li>• Red List plant species of the study area: <i>Lithops lesliei</i> and <i>Rennera stellata</i></li> <li>• One protected plant species, <i>Harpagophytum procumbens</i>.</li> <li>• Two protected tree species, <i>Acacia erioloba</i> and <i>Boscia albitrunca</i>.</li> <li>• Brown Hyaena, Honey badger, Southern African Hedgehog, Giant Bullfrog</li> </ul> </li> </ul>			
<b>Mitigation</b>	Re-siting components of the project to avoid pan depressions, formalising a rehabilitation programme, undertaking a botanical walk-through survey, undertaking search-and-rescue for any appropriate species, obtaining permits for any protected species that will be affected			

Potential presence of Kori Bustard, Blue Crane, Secretarybird


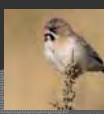
Some issues related to the ecology of the site could result in potentially significant impacts but the seriousness of these impacts is not considered to be high.

### AVIFAUNA



	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• The projects are located in the Grassland avifaunal endemic region which has the fourth highest number of endemic bird species in southern Africa.</li> <li>• An estimated 220 species could potentially occur at the core study area. Of these, 9 are South African Red Data species, 11 are southern African endemics and 22 are near-endemics.</li> <li>• The application site and immediate surroundings as a whole should therefore be regarded as moderately sensitive.</li> <li>• Highly sensitive areas are water troughs and rivers as these micro-habitats are potential focal points of bird activity.</li> </ul>			
<b>Impacts and Mitigation</b>	No fatal flaws were identified thus far, and the proposed development could therefore be authorised, provided all proposed mitigation measures are implemented			

Monitoring is ongoing and in depth statistical analyses will be performed on the full dataset after the monitoring has been completed.

### SURFACE WATER

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• Vaal Primary Catchment (C32B quaternary catchment); Lower Vaal Water Management Area</li> <li>• The surrounding pan wetlands, drainage line and spring have a small chance of being affected from an indirect perspective should mitigation measures not be implemented.</li> </ul>			
	Four pan wetlands could potentially be affected.	Three pan wetlands could potentially be directly affected.	No pan wetlands would be directly affected.	Two pan wetlands could potentially be affected.
<b>Mitigation</b>	Preventing loss of wetland habitat, increased run-off, erosion and sedimentation			




### SOILS AND AGRICULTURAL POTENTIAL BIVEST

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>Soils were all shallow to very shallow. Some rock outcrops occur in places in the landscape.</li> <li>The soils are reddish-brown to brown, structureless to weakly structured</li> <li>The shallow soils in the area and the low rainfall means that the only means of reliable cultivation would be by irrigation, there is no evidence of irrigation.</li> <li>There are no areas of cultivation that were identified, only a few small, isolated areas of "Improved grassland".</li> <li>This part of North West is well suited for grazing but grazing capacity is relatively low, around 12 ha/large stock unit.</li> </ul>			
<b>Impacts and Mitigation</b>	<p>Due to low agricultural potential, little or no mitigation measures are required.</p> <p>The footprint of the development should be kept to a minimum, so that at least the effect on grazing land for livestock is reduced.</p> <p>To prevent erosion, disturbance should be minimised and any bare soil should be re-vegetated as soon as possible, other preventative measures may also be required.</p>			

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### VISUAL BIVEST

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>Study area has a natural visual character, with a rural or pastoral component.</li> <li>The study area is not generally valued for its tourism significance and is rated as having a low visual sensitivity.</li> <li>N18 highway is considered to be visually sensitive and the relatively high volumes of motorists would be visually exposed to the projects.</li> <li>Several scattered farmsteads are regarded as potentially sensitive visual receptors.</li> <li>Two sensitive receptors → Arthington Memorial Church and Tiger Kloof Educational Institution.</li> </ul>			
<b>Mitigation</b>	<p>Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. Ensure that dust suppression techniques are implemented on all gravel access roads. Light fittings for security at night should reflect the light toward the ground and prevent light spill.</p>			




Low visual impact during construction

Medium visual impact during operation

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### HERITAGE AND PALAEOLOGY BIVEST

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>A total of 6 Stone Age findspots → mostly around pans and dried up streams.</li> <li>Most findspots have a low significance</li> <li>One site presented a large volume of Middle and Late Stone Age artefacts, including pieces of ostrich eggshell. This site could hold valuable information and is considered a more sensitive site with medium significance.</li> <li>There is a historic waterhole and spring with well defined Stromatolite (fossil) structures. A sinkhole with cave breccia is likely present in the landscape.</li> <li>The site falls on a very clear fault zone in the dolomite and could be associated with a cave system and sinkholes.</li> </ul>			
<b>Mitigation</b>	<p>Sensitive sites will require mitigation work, including a controlled surface collection of the material and permits from SAHRA. Exclusion area recommended around the historic waterhole and spring.</p>			

The overall impact on heritage resources is seen as acceptable, mitigation measures address any impacts on heritage resources.

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### SOCIO-ECONOMIC BIVEST

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Grid Connection
<b>General Findings</b>	<ul style="list-style-type: none"> <li>Area's most significant socio-economic challenge is lack of employment opportunities - community leaders and land owners.</li> <li>Projects that create opportunities for employment are supported by the local authorities.</li> <li>Development of the solar PV facilities in the area may attract further investment into the municipality.</li> <li>The project would generate positive socio-economic returns for the local economy and its community.</li> </ul>			
<b>Mitigation</b>	<p>The farm is currently being used for livestock farming and game breeding. The project will not affect these operations, as they are expected to be moved to the adjacent farm.</p>		<p>The project is not expected to jeopardise operations</p>	
	<p>Risks of livestock theft, damage to property, and burglaries will need to be properly managed by the developer.</p> <p>Care should be taken to not unduly negatively impact on agricultural production in the region.</p>			<p>The location of infrastructure should allow for livestock to roam freely</p>

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### LAYOUT ALTERNATIVES BIVEST

LAYOUT ALTERNATIVES

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### LAYOUT ALTERNATIVES BIVEST

- Layout alternatives will be presented in the DEiAR.
- Design to incorporate specialist findings and stakeholder input.

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**PUBLIC PARTICIPATION**

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**PUBLIC PARTICIPATION – SCOPING PHASE**

ONGOING I&AP IDENTIFICATION & CONSULTATION

- Site Notices and Stakeholder Consultation  
December 2015
- BID Comment Period  
December 2015 – January 2016
- EIA Process Advertisement  
January 2016
- DSR Availability  
DSR Review Period: 11 January 2016 – 09 February 2016
- FSR Availability and Submission to DEA  
February 2016

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**PUBLIC PARTICIPATION – EIA PHASE**

ONGOING I&AP IDENTIFICATION & CONSULTATION

- Environmental Meetings  
15 March 2016
- DEA Acceptance of FSR and EIA Plan of Study  
April 2016
- EIA Newsletter  
April 2016
- DEIAR Availability  
April 2016
- FEIAR Availability and Submission to DEA  
June 2016
- Notify I&APs of EA and Appeal Process  
September/October 2016

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**DISCUSSION**

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**CONTACT DETAILS**

SIVEST Environmental Division  
PO Box 2921  
Rivonia  
2128

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E-mail: lynseyr@sivest.co.za / nicolenev@zitholele.co.za  
Website: www.sivest.co.za

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**WAY FORWARD**

- Draft Minutes of Meeting  
Distribute: 2 weeks after meeting
- DEIAR Availability  
Public Review: Envisaged April – May 2016 (30 Days) | Submit to DEA: Envisaged April 2016
- Submission of FEIAR to DEA  
Envisaged June 2016
- DEA Decision  
Envisaged September/October 2016

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## **Annexure C**

### **DISCUSSION DOCUMENT**

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE PROPOSED  
DEVELOPMENT OF THE THREE 75MW SENDAWO SOLAR PHOTOVOLTAIC (PV)  
ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400kV POWER  
LINE NEAR VRYBURG, NORTH WEST PROVINCE**

SENDAWO SUBSTATION & 400kV POWER LINE: 14/12/16/3/3/2/894

SENDAWO PV SOLAR 1: DEA Ref No: 14/12/16/3/3/2/891

SENDAWO PV SOLAR 2: DEA Ref No: 14/12/16/3/3/2/892

SENDAWO PV SOLAR 3: DEA Ref No: 14/12/16/3/3/2/893

**DRAFT DISCUSSION DOCUMENT  
PUBLIC MEETING: INTERESTED AND AFFECTED PARTIES (I&APs)**

Huhudi Community Hall, Huhudi, Vryburg

**Tuesday, 15 March 2016 at 19h00**

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3.	Project Related Comments/Issues .....	4
4.	General Related Comments/Issues .....	5
5.	Communication Related Comments/Issues .....	5

Comments / concerns / issues have been categorised according to environmental impact and thereafter according to SURNAME.

The comments / concerns / issues captured are not verbatim, but a summary.

**ABBREVIATIONS:**

DEA	Department of Environmental Affairs	DoE	Department of Energy
DWS	Department of Water and Sanitation	EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner	EMPr	Environmental Management Programme
EWT	Endangered Wildlife Trust	IPP	Independent Power Producer
PP	Public Participation	SKA	Square Kilometre Array

Issue/Comment	Raised By & When	Response
<b>1. Socio-Economic Related Comments/Issues</b>		
<p>Wanted to know whether BioTherm have a Social Development Programmes in place.</p>	<p>OTLETSENG, Charles Managing Director Boka Baby Electricity &amp; Projects</p>	<p>In terms of this proposed project the following is envisaged for the surrounding community during the construction and operation phases:</p> <ul style="list-style-type: none"> <li>• <u>Job creation – requirements in terms of the Department of Energy (DoE):</u> <ul style="list-style-type: none"> <li>○ appointing South African citizens;</li> <li>○ appoint both black and white individuals, however BioTherm will only receive points for black individuals;</li> <li>○ appointing of skilled black individuals; and</li> <li>○ appointing of individuals from the <u>local</u> community which must be a large percentage of the workforce.</li> </ul> </li> <li>• <u>Social Development Plans:</u> <ul style="list-style-type: none"> <li>○ the DoE requires BioTherm to use a percentage of the money earned to commit to social economic development and enterprise development. This will be done for a maximum of 50km radius from where the project site is located. Huhudi falls within this 50km radius;</li> <li>○ Socio economic development will include the social programmes that BioTherm would have planned for in consultation with the local community , the Naledi Local Municipality’s Integrated Development Plan (IDP), and the National Development Plan (NDP);</li> <li>○ If BioTherm have been awarded preferred bidder status and have won the tender, the process of assessing what the local community needs and what social projects to implement can start. This will be done in consultation with the existing community structures within the 50km radius. Social projects referred to could include plans such as the upgrade and/or development of clinics, hospitals, schools etc.</li> <li>○ Enterprise development will occur once the project is operational and BioTherm are earning money. This</li> </ul> </li> </ul>

		<p>includes opportunities such as mentorship for local business members who are in need of such mentoring.</p> <ul style="list-style-type: none"> <li>○ Community ownership. Currently the DoE wants all renewable energy projects to register a Community Trust. This is for the benefit and social upliftment of the local communities. However, there is a possibility that this obligation is going to fall away within the next couple of years (This could therefore change in the future).</li> </ul> <p><b>Thulani Koom, Economic Development Manager, BioTherm Energy</b></p>
<p>Enquired about BioTherm's plans for small and medium enterprises (SMEs) in the area.</p>	<p>OTLETSENG, Charles Managing Director Boka Baby Electricity &amp; Projects</p>	<ul style="list-style-type: none"> <li>• BioTherm are required to procure from BBBEE suppliers, Qualified Small Enterprise (QSE) suppliers, Exempted Micro Enterprise (EME) suppliers, and woman owned vendors. Women owned vendors are companies owned by women with a 50% or more ownership in the business;</li> <li>• Local community members will have opportunities with regards to job creation and procurement. For example, individuals with catering companies can supply construction workers with food, owners of guest houses in the area can provide accommodation for individuals working on the project or job seekers, etc.); These opportunities will only arise if BioTherm start construction and not before. The attendees were cautioned not to start spending money and investing in businesses etc. at this stage as the project might not receive authorisation;</li> <li>• Technical companies (such as an electrical or metal) could be provided with opportunities to participate in various activities on the solar plant site. The above-mentioned opportunities are however not specific to SMEs. They are only specific to BBBEE compliant suppliers, QSE and EME suppliers, and women owned vendors. These are the three categories that BioTherm need to focus on;</li> </ul>

		<b>Thulani Koom, Economic Development Manager, BioTherm Energy</b>
<p>Raised concern about the skilled labourers that will need to be hired during construction. Not many individuals in the community are skilled and are not provided with opportunities to become skilled due to lack of schooling, etc.</p> <p>Are BioTherm proposing any way to approach the local community prior to employment opportunities in order to provide them with training to become skilled? This will benefit the community members not only for this project but also in the future.</p>	MOSIMANYANE, Thabo Huhudi Local Resident	<p>Currently, BioTherm (or any developer) can only spend money on uplifting communities during operation.</p> <p>The general problem experienced is the sourcing of skilled local labour in areas with mostly unskilled residents. BioTherm are often ultimately forced to look outside the rural areas for skilled labour when they cannot find these individuals. This is a fatal flaw within the programme and this matter is currently being discussed with the DoE, as it is a reality that people on the ground are not benefiting from these projects in the early stages of a project.</p> <p>DoE is therefore looking at changing a few requirements.</p> <p>For now, BioTherm can only do something for the larger community once a project generates an income.</p> <p>There are a number of construction companies or sub-contractors that do provide training before construction starts, but the team present cannot commit to this as this is not how the process is currently structured.</p> <p>BioTherm want to encourage the youth to try and educate themselves as much as possible for future projects. This will provide them with more employment and upliftment opportunities in the future.</p> <p><b>Thulani Koom, Economic Development Manager, BioTherm Energy</b></p>
<b>2. EIA Process Related Comments/Issues</b>		
Enquired whether the library in Huhudi was a sufficient and acceptable location to make the DEIARs available.	VENTER, Nicolene PP Practitioner Zitholele Consulting	Confirmed that this is acceptable as they do make use of the library. <b>All attendees</b>
Wanted to know why an EIA is being done i.e. what is the purpose of the EIA?	MOGAPI, Tshepo Ivan Huhudi Local Resident	An EIA is a legal requirement and is undertaken in order to assess the various impacts on the surrounding environment envisaged from a proposed project. No developments can be undertaken without doing an EIA. An EIA is also done in order



		to allow stakeholders and members of the local community to participate in the process and to voice their concerns. <b>Nicolene Venter, PP Practitioner, Zitholele Consulting</b>
<b>3. Project Related Comments/Issues</b>		
Wanted to know whether the project will be on Eskom property, connected to Eskom power lines and whether the project is an Eskom initiated project.	SOJANJA, Gomotsegang Huhudi Local Resident	The proposed project will be developed and operated on private property. <b>Nicolene Venter, PP Practitioner, Zitholele Consulting</b>  The electricity generated will connect into Eskom's existing Mookodi Substation and Eskom will buy the power generated by the solar plant from BioTherm. Eskom will then distribute the electricity through their electricity network. <b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b>
To provide the attendees with an idea regarding the size of the proposed 400kV Sendawo Substation, it was enquired whether it would be more or less the same size as the Mookodi Substation.	VENTER, Nicolene PP Practitioner Zitholele Consulting	Stated that the proposed 400kV Sendawo substation will be smaller than the Mookodi Substation. <b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b>
At what stage will the public know if BioTherm have been successful in their bid and how will the construction companies announce that they are hiring for construction purposes?	VENTER, Nicolene PP Practitioner Zitholele Consulting	Just to reiterate, the EIA and permitting processes are being undertaken at this point in time. BioTherm does not inform the public that they are going into bid submission as it is a very competitive market. Only after the DoE announces that Sendawo 1, 2 and 3 have won will the public be made aware of this. The successful bidding will be announced by the DoE via internet. Newspaper advertisements will be used by BioTherm to notify the local communities accordingly. Their Economic Development Department will liaise with the municipality and current ward councillors to notify them that the projects have received preferred bidder status and will start to discuss opportunities that will be available. BioTherm will liaise with the municipality, local leaders and local community members after they have received funding for the project in order to notify them that construction will

		<p>commence and to determine how job selection should take place in a specific local community as BioTherm have become aware that different communities have different ways of selecting people for job opportunities.</p> <p><b>Thulani Koom, Economic Development Manager, BioTherm Energy</b></p>
<b>4. General Related Comments/Issues</b>		
Enquired where BioTherm is based.	OTLETSENG, Charles Managing Director Boka Baby Electricity & Projects	BioTherm is based in Fourways, Johannesburg <b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b>
Enquired who the stakeholders are for the proposed development.	MOSIMANYANE, Thabo Huhudi Local Resident	<p>BioTherm Energy is the applicant proposing the development, and they appointed SIVEST as the independent EAP to undertake the environmental studies.</p> <p>The DEA is the competent authority who will be making the decision with regards to granting or refusing an authorisation for the proposed development. The DEA needs to make an informed decision regarding a proposed development and therefore require input from the community members.</p> <p><b>Nicolene Venter, PP Practitioner, Zitholele Consulting</b></p>
<b>5. Communication Related Comments/Issues</b>		
The attendees were informed that they are welcome to contact her via “WhatsApp” requesting her to phone them back, should they want to submit any additional questions, comments or concerns regarding to this proposed project. She will respond to these “WhatsApp” messages and request that the word “Sendawo” or “Vryburg Solar” be included. It was reiterated that no “please call me” SMSs will be responded to as it does not provide an indication which project the message is about.	VENTER, Nicolene PP Practitioner Zitholele Consulting	
The attendees were informed that, due to access to internet and post, that hard copies (printed copies) of the presentation and minutes will be made available at the Huhudi Library.		<p>The attendees accepted this arrangement and expressed their appreciation.</p> <p><b>All Attendees</b></p>



**Environmental Impact Assessments for  
the Proposed Development of the Three  
Sendawo 75MW Solar Photovoltaic (PV)  
Energy Facilities, and the Associated  
Substation and 400kv Power Line near  
Vryburg, North West Province**

**Feedback of the  
Focus Group Meeting (FGM)**

**Landowners**

**Held on  
Tuesday 15 March 2016 at 11h00**

**Lavender Lodge, 2 Molopo Road, Vryburg.**

**North West Province**

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**SiVEST Environmental (Pty) Ltd**

**Contact:** Lynsey Rimbault

**Address:** PO Box 2921  
51 Wessels Road  
Rivonia 2128

**Tel:** 011 798 0600

**Fax:** 011 803 7272

**E-mail:** [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

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## FOCUS GROUP MEETING

**Venue:** Lavender Lodge, 2 Molopo Road, Vryburg  
**Date:** Tuesday, 15 March 2016  
**Time:** 11h00 – 12h00

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Except for the representatives from SiVEST, Zitholele and BioTherm Energy, no one attended the Focus Group Meeting (FGM). Landowners who submitted apologies for not being able to attend the FGM were Ms. G Pieterse, Mr. Nico van Rooyen, Mr. Mark Boobbyer and Ms. Gill Wheeler. The meeting feedback document will be sent to all the surrounding landowners, including those who submitted apologies. A copy of the Attendance Record is attached as **Annexure A**. All affected and surrounding landowners were invited to the workshop in writing (email notification, **Appendix C**).

The FGM presentation was not presented at the meeting, however, a copy of the presentation (as prepared) is attached as **Annexure B**.

## **Annexure A**

### **ATTENDANCE RECORD**

**SENDAWO SOLAR PROJECTS: LANDOWNER FOCUS  
GROUP MEETING ATTENDANCE RECORD**

<b>First Name</b>	<b>Last Name</b>	<b>Company</b>
Irene	Bezuidenhout	BioTherm Energy
Siphelele	Dunga	BioTherm Energy
Thulani	Koom	BioTherm Energy
Daniel	Lowings	BioTherm Energy
Lynsey	Rimbault	SiVEST
Stephan	Jacobs	SiVEST
Nicolene	Venter	Zitholele Consulting

## **Annexure B**

### **COPY OF PRESENTATION**

## ENVIRONMENTAL IMPACT ASSESSMENTS FOR THE PROPOSED DEVELOPMENT OF THE THREE SENDAWO 75MW SOLAR PHOTOVOLTAIC ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

DEA Ref. No.: SENDAWO GRID: 14/12/16/3/3/2/894  
 SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
 SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
 SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893

A PROFESSIONAL TEAM DELIVERING CREATIVE PROJECT SOLUTIONS



Consulting Engineers • Project Managers • Environmental Consultants • Town and Regional Planners

### FOCUS GROUP MEETING

PRESENTATION DATE: 15 March 2016

## AGENDA

- Welcome, introduction and apologies
- Purpose and conduct of meeting
- Background to the proposed development
- Environmental process followed and findings
- Discussion session
- Closure

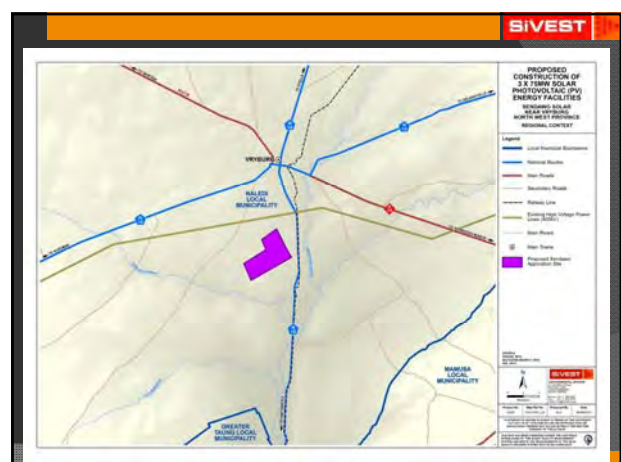
## PURPOSE OF MEETING

- To provide an overview of the proposed project
- To provide feedback on the findings as documented in EIA phase specialist reports
- Provide an opportunity to raise comments and/or concerns regarding the proposed project
- To record comments, issues and concerns raised

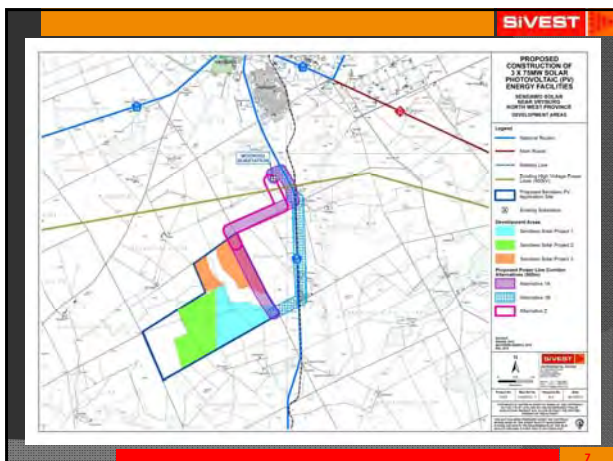
## PROJECT OVERVIEW

## PROJECT OVERVIEW

- **What does the proposed development entail?**
  - Construction of Sendawo 1, Sendawo 2 and Sendawo 3 Solar Photovoltaic (PV) energy facilities, each with a maximum generation capacity of 75MW.
    - Including associated infrastructure for each facility
      - New onsite substation
      - New power line from each PV facility to the Sendawo substation
      - Access road upgrades
      - Construction laydown area
      - Admin and warehouse building
  - Sendawo 400kV substation, and 400kV power line to connect the proposed substation to the existing Mookodi MTS
- **Why is the project being proposed?**
  - To generate electricity to feed into the national grid
  - Promote use of renewable energy
  - To help meet future energy consumption requirements

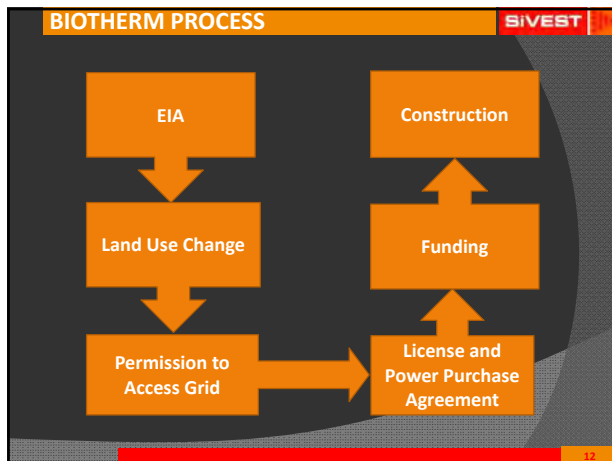
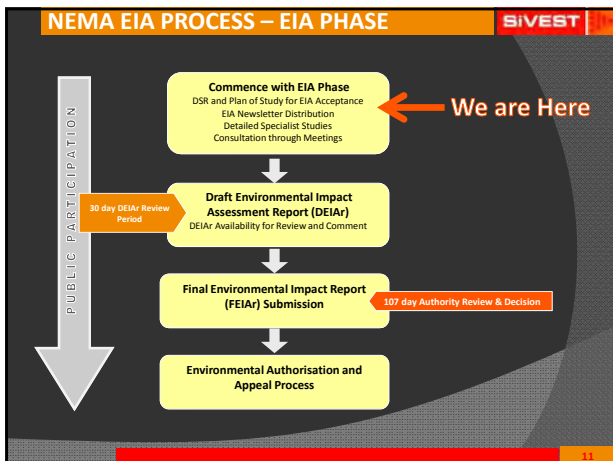
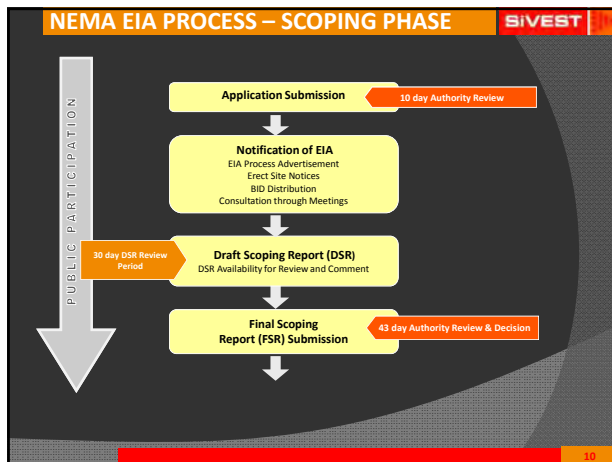






### PROJECT OVERVIEW

- Who is the independent EAP?**
  - SIVEST SA
- Why undertake an EIA?**
  - Legal requirement
  - Consider environmental impacts and mitigation measures
  - Provide stakeholders/I&APs the opportunity to participate
- Who is the applicant?**
  - BioTherm Energy
- Who is the decision-making authority?**
  - Department of Environmental Affairs (DEA)



# ENVIRONMENTAL FINDINGS


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- ## ENVIRONMENTAL FINDINGS
- EIA phase underway
    - Rating of significance of impacts
    - Compliance with Equator Principles
    - Compliance with all National legislation
    - Comparative assessment of on site alternatives
    - Environmental Management Programme
  - Environmental aspects being assessed
    - Biodiversity (flora and fauna)
    - Avifauna
    - Surface Water
    - Soils and Agricultural Potential
    - Visual
    - Heritage and Palaeontology
    - Socio-economic

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## BIODIVERSITY

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• Vegetation (Ghaap Plateaux Vaalbosveld) is classified as Least Threatened</li> <li>• However, Provincial Biodiversity Conservation Assessment identifies Critical Biodiversity Areas and Ecological Support Areas → buffer areas for pans, provincial corridor network and dolomite aquifer recharge zone.</li> <li>• Potential presence of:                             <ul style="list-style-type: none"> <li>• Red List plant species of the study area: <i>Lithops lesliei</i> and <i>Rennera stellata</i></li> <li>• One protected plant species, <i>Harpagophytum procumbens</i>.</li> <li>• Two protected tree species, <i>Acacia erioloba</i> and <i>Boscia albitrunca</i>.</li> <li>• Brown Hyaena, Honey badger, Southern African Hedgehog, Giant Bullfrog</li> </ul> </li> </ul>			
	Potential presence of Kori Bustard, Blue Crane, Secretarybird			
<b>Mitigation</b>	Re-siting components of the project to avoid pan depressions, formalising a rehabilitation programme, undertaking a botanical walk-through survey, undertaking search-and-rescue for any appropriate species, obtaining permits for any protected species that will be affected			



*Lithops lesliei*

Some issues related to the ecology of the site could result in potentially significant impacts but the seriousness of these impacts is not considered to be high.




*Acacia erioloba*

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## AVIFAUNA

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• The projects are located in the Grassland avifaunal endemic region which has the fourth highest number of endemic bird species in southern Africa.</li> <li>• An estimated 220 species could potentially occur at the core study area. Of these, 9 are South African Red Data species, 11 are southern African endemics and 22 are near-endemics.</li> <li>• The application site and immediate surroundings as a whole should therefore be regarded as moderately sensitive.</li> <li>• Highly sensitive areas are water troughs and rivers as these micro-habitats are potential focal points of bird activity.</li> </ul>			
<b>Impacts and Mitigation</b>	No fatal flaws were identified thus far, and the proposed development could therefore be authorised, provided all proposed mitigation measures are implemented			



*Marico Flycatcher*

Monitoring is ongoing and in depth statistical analyses will be performed on the full dataset after the monitoring has been completed.





*Scaly-feathered Finch*

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## SURFACE WATER

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• Vaal Primary Catchment (C32B quaternary catchment); Lower Vaal Water Management Area</li> <li>• The surrounding pan wetlands, drainage line and spring have a small chance of being affected from an indirect perspective should mitigation measures not be implemented.</li> </ul>			
	Four pan wetlands could potentially be affected.	Three pan wetlands could potentially be directly affected.	No pan wetlands would be directly affected.	Two pan wetlands could potentially be affected.
<b>Mitigation</b>	Preventing loss of wetland habitat, increased run-off, erosion and sedimentation			



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## SOILS AND AGRICULTURAL POTENTIAL

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• Soils were all shallow to very shallow. Some rock outcrops occur in places in the landscape.</li> <li>• The soils are reddish-brown to brown, structureless to weakly structured</li> <li>• The shallow soils in the area and the low rainfall means that the only means of reliable cultivation would be by irrigation, there is no evidence of irrigation.</li> <li>• There are no areas of cultivation that were identified, only a few small, isolated areas of "Improved grassland".</li> <li>• This part of North West is well suited for grazing but grazing capacity is relatively low, around 12 ha/large stock unit.</li> </ul>			
<b>Impacts and Mitigation</b>	Due to low agricultural potential, little or no mitigation measures are required. The footprint of the development should be kept to a minimum, so that at least the effect on grazing land for livestock is reduced. To prevent erosion, disturbance should be minimised and any bare soil should be re-vegetated as soon as possible, other preventative measures may also be required.			


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### VISUAL

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>Study area has a natural visual character, with a rural or pastoral component.</li> <li>The study area is not generally valued for its tourism significance and is rated as having a low visual sensitivity.</li> <li>N18 highway is considered to be visually sensitive and the relatively high volumes of motorists would be visually exposed to the projects.</li> <li>Several scattered farmsteads are regarded as potentially sensitive visual receptors.</li> <li>Two sensitive receptors → Arthington Memorial Church and Tiger Kloof Educational Institution.</li> </ul>			
<b>Mitigation</b>	Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. Ensure that dust suppression techniques are implemented on all gravel access roads. Light fittings for security at night should reflect the light toward the ground and prevent light spill.			
	 Low visual impact during construction		 Medium visual impact during operation	

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### HERITAGE AND PALAEOLOGY

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>A total of 6 Stone Age findspots → mostly around pans and dried up streams.</li> <li>Most findspots have a low significance</li> <li>One site presented a large volume of Middle and Late Stone Age artefacts, including pieces of ostrich eggshell. This site could hold valuable information and is considered a more sensitive site with medium significance.</li> <li>There is a historic waterhole and spring with well defined Stromatolite (fossil) structures. A sinkhole with cave breccia is likely present in the landscape.</li> <li>The site falls on a very clear fault zone in the dolomite and could be associated with a cave system and sinkholes.</li> </ul>			2 findspots identified, both representing the Earlier and Middle Stone Age. Both findspots have low heritage significance and will require no further mitigation.
<b>Mitigation</b>	Sensitive sites will require mitigation work, including a controlled surface collection of the material and permits from SAHRA. Exclusion area recommended around the historic waterhole and spring.			
	The overall impact on heritage resources is seen as acceptable, mitigation measures address any impacts on heritage resources.			

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### SOCIO-ECONOMIC

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Grid Connection
<b>General Findings</b>	<ul style="list-style-type: none"> <li>Area's most significant socio-economic challenge is lack of employment opportunities - community leaders and land owners.</li> <li>Projects that create opportunities for employment are supported by the local authorities.</li> <li>Development of the solar PV facilities in the area may attract further investment into the municipality.</li> <li>The project would generate positive socio-economic returns for the local economy and its community.</li> </ul>			
	<ul style="list-style-type: none"> <li>The farm is currently being used for livestock farming and game breeding. The project will not affect these operations, as they are expected to be moved to the adjacent farm.</li> </ul>		The project is not expected to jeopardise operations	
<b>Mitigation</b>	Risks of livestock theft, damage to property, and burglaries will need to be properly managed by the developer.			Care should be taken to not unduly negatively impact on agricultural production in the region.
				The location of infrastructure should allow for livestock to roam freely

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### LAYOUT ALTERNATIVES

LAYOUT ALTERNATIVES

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### LAYOUT ALTERNATIVES

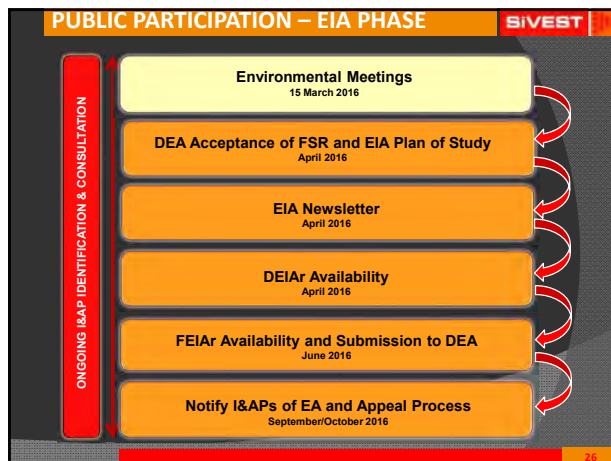
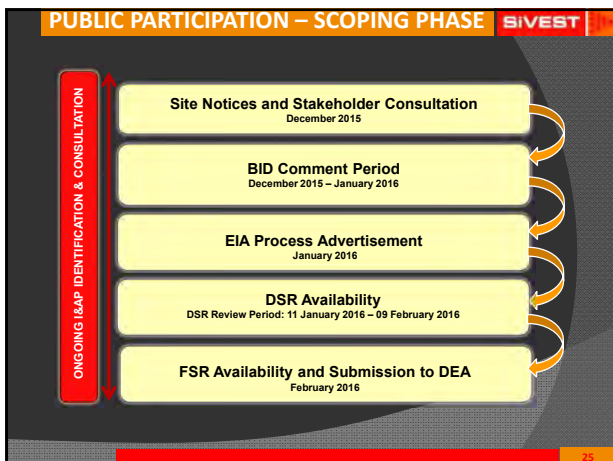
- Layout alternatives will be presented in the DEIAr.
- Design to incorporate specialist findings and stakeholder input.

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### PUBLIC PARTICIPATION

PUBLIC PARTICIPATION

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### DISCUSSION

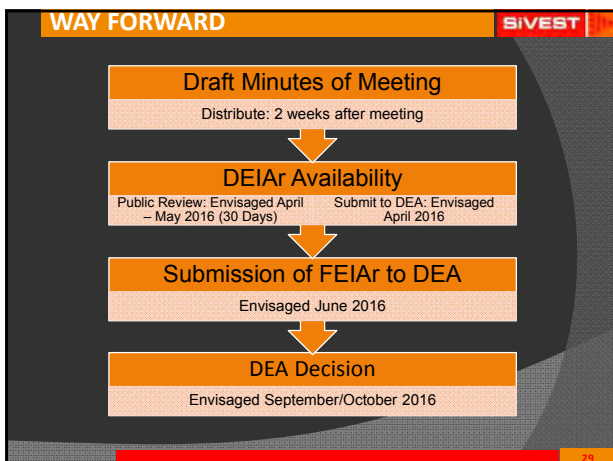
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### CONTACT DETAILS

SIVEST Environmental Division  
PO Box 2921  
Rivonia  
2128

Lynsey Rimbault/ Nicolene Venter  
 ☎ Phone: (011) 798 0600  
 📠 Fax: (011) 803 7272  
 ✉ E-mail: lynseyr@sivest.co.za / nicolenev@zitholele.co.za  
 🌐 Website: www.sivest.co.za

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## **Annexure C**

### **PROOF OF NOTIFICATION**

## Hlengiwe Ntuli

---

**From:** Hlengiwe Ntuli  
**Sent:** 08 March 2016 08:52 AM  
**Cc:** Rebecca Thomas; Lynsey Rimbault; nicolenev@zitholele.co.za  
**Subject:** Corrected Sendawo FGM Landowner Invitation  
**Attachments:** 13303 Sendawo LO FGM Agenda Rev 1\_7March2016 RT\_Combined.pdf; 13303 Sendawo LO FGM InviteLetter Rev1\_7March2016 RT\_combined.pdf; 13303 Sendawo LO FGM Registration Form Rev1\_7March2016 RT\_Combined.pdf

### Tracking:

#### Recipient

#### Read

Rebecca Thomas

Read: 2016/03/08 09:34 AM

Lynsey Rimbault

Read: 2016/03/08 08:59 AM

nicolenev@zitholele.co.za

'Neil Faber'

'Theo Geldenhuys'

'Adele Oberholzer'

Please note that there was an error in the invitation that was previously sent, the project is located near Vryburg in the North West Province.

\*\*\*\*\* Please note that this email was sent from a NO REPLY email address. Please do not reply to this address as it is an unmonitored email account. \*\*\*\*\* Dear Stakeholder,

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE, NEAR VRYBURG, NORTH WEST PROVINCE

DEA Ref. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894

- INVITATION TO FOCUS GROUP MEETING

This letter serves to cordially invite you to attend a Focus Group Meeting (FGM) that will be held on:

DATE: Tuesday, 15 March 2016

TIME: 11h00

VENUE: 41 on Market Lodge, 41 Market Street, Vryburg

This FGM is part of the Environmental Impact Assessment (EIA) process being undertaken by SiVEST for the above mentioned project.

As stakeholder we would value your attendance at the FGM. The purpose of this FGM is to:

- ☐ provide feedback on the environmental findings;
- ☐ provide the opportunity to raise any questions for clarifications regarding the environmental findings;
- ☐ provide the opportunity to raise any comments and/or concerns regarding this proposed project; and
- ☐ record your comments and/or concerns raised at the FGM.

To ensure that sufficient seating is provided at the venue, we kindly request that you complete the attached Registration Form and return it to the Public Participation team on or before Friday 11 March 2016.

Please also note that a Public Meeting is being held on the evening of Tuesday, 15 March 2016 at Huhudi Community Hall, at Mosiapoa St and Voortrekker St, Vryburg at 18h00.

We are looking forward to your attendance and meaningful contributions.

\*\*\*\*\*

Geagte Belanghebbende,

OMGEWINGSIMPAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGAAANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400KV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE

DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893  
SENDAWO GRID: 14/12/16/3/3/2/894

• UITNODIGING NA FOKUSGROEPVERGADERING

Die doel van hierdie brief is om u vriendelik uit te nooi om 'n Fokusgroepvergadering (FGV) by te woon wat gehou sal word op:

DATUM: Dinsdag 15 Maart 2016  
TYD: 11h00  
PLEK: 41 on Market Lodge, 41 Market Straat, Vryburg

Hierdie FGV is deel van die Omgewingsimpakevalueringproses (OIE-proses) wat SiVEST vir die bogenoemde projek onderneem.

As belanghebbende sal ons u bywoning van die FGV op prys stel. Die doel van hierdie FGV is om:

- Terugvoer te bied oor die omgewingsbevindinge;
- aan u die geleentheid te bied om vrae te vra ter verduideliking betreffende die omgewingsbevindinge en/of enige ander aangeleentheid wat u wil opper; en
- u kommentaar en/of knelpunte wat by die FGV geopper word, aan te teken.

Om te verseker dat genoegsame sitplek by die lokaal beskikbaar is, versoek ons u vriendelik om die aangehegte Registrasievorm in te vul en dit voor of op Vryday, 11 Maart 2016 aan die Openbare Deelnamespan terug te stuur.

Neem asseblief ook kennis dat 'n Openbare Vergadering vanaf 18h00 op die aand van Dinsdag, 15 Maart 2016 in die Huhudi Community Hall, Mosiapoa St en Voortrekker St, Vryburg, gehou sal word.

Ons sien uit na u bywoning en betekenisvolle bydraes.

Kind Regards,

REBECCA THOMAS (B.Sc Env. Sc.; PDM Business Management) Senior Environmental Scientist SiVEST Environmental Division

SiVEST is a Level 3 BBBEE Contributor

direct +27 11 798 0634 tel +27 11 798 0600 fax +27 11 803 7272 cell +27 82 302 9010  
email rebeccat@sivest.co.za website www.sivest.co.za

Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)

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Direct +27 11 798 0691 Tel +27 11 798 0600 fax +27 11 803 7272 cell +27 72 779 4899  
email [shaunt@sivest.co.za](mailto:shaunt@sivest.co.za) website [www.sivest.co.za](http://www.sivest.co.za)

Consulting Engineers - Project Managers - Environmental Consultants - Town and Regional Planners Durban - Johannesburg - Pietermaritzburg - Richards Bay - Ladysmith - Cape Town - Harare (Zimbabwe)



Your reference:

Our reference: 13303

Date: 9 March 2016

Dear Stakeholder,

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE, NEAR VRYBURG, NORTH WEST PROVINCE**

**DEA Ref. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891**  
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**SENDAWO GRID: 14/12/16/3/3/2/894**

• **INVITATION TO FOCUS GROUP MEETING**

This letter serves to cordially invite you to attend a Focus Group Meeting (FGM) that will be held on:

**DATE:** Tuesday, 15 March 2016  
**TIME:** 11h00  
**VENUE:** Lavender Lodge, 2 Molopo Road, Vryburg

This FGM is part of the Environmental Impact Assessment (EIA) process being undertaken by SiVEST for the above mentioned project.

As stakeholder we would value your attendance at the FGM. The purpose of this FGM is to:

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- provide the opportunity to raise any questions for clarifications regarding the environmental findings;
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To ensure that sufficient seating is provided at the venue, we kindly request that you complete the attached Registration Form and return it to the Public Participation team on or before Friday 11 March 2016.

Please also note that a **Public Meeting** is being held on the evening of **Tuesday, 15 March 2016** at Huhudi Community Hall, at Mosiapoa St and Voortrekker St, Vryburg at 18h00.

We are looking forward to your attendance and meaningful contributions.

Yours sincerely,



Rebecca Thomas  
Environmental Practitioner  
**SiVEST Environmental Division**

**Documents attached:** Draft Agenda  
Registration Form

U verwysing

Ons verwysing 13303

Datum 9 Maart 2016

Geagte Belanghebbende,

**OMGEWINGSIMPAAKEVALUERING (OIE) EN OMGEWINGSBESTUURSPROGRAM (OBPr) VIR DIE VOORGESTELDE ONTWIKKELING VAN DIE DRIE (3) SENDAWO 75MW FOTOVOLTAÏESE (FV) SONKRAGANLEGTE, EN DIE GEASSOSIEERDE SUBSTASIE EN 400kV KRAGLYN NABY VRYBURG, NOORDWES PROVINSIE**

**DO Verw. No. SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891**  
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**TYD:** 11h00  
**PLEK:** Lavender Lodge, 2 Molopo Road, Vryburg

Hierdie FGV is deel van die Omgewingsimpakevalueringproses (OIE-proses) wat SiVEST vir die bogenoemde projek onderneem.

As belanghebbende sal ons u bywoning van die FGV op prys stel. Die doel van hierdie FGV is om:

- Terugvoer te bied oor die omgewingsbevindinge;
- aan u die geleentheid te bied om vrae te vra ter verduideliking betreffende die omgewingsbevindinge en/of enige ander aangeleentheid wat u wil opper; en
- u kommentaar en/of knelpunte wat by die FGV geopper word, aan te teken.

Om te verseker dat genoegsame sitplek by die lokaal beskikbaar is, versoek ons u vriendelik om die aangehegte Registrasievorm in te vul en dit voor of op Vrydag, 11 Maart 2016 aan die Openbare Deelnamespan terug te stuur.

Neem asseblief ook kennis dat 'n **Openbare Vergadering** vanaf 18h00 op die aand van **Dinsdag, 15 Maart 2016** in die Huhudi Community Hall, Mosiapoa St en Voortrekker St, Vryburg, gehou sal word.

Ons sien uit na u bywoning en betekenisvolle bydraes.

Vriendelike groete,



Rebecca Thomas  
Omgewingskonsultant  
**SiVEST Omgewingsafdeling**

**Aangehegte dokumente:** Konsep sakelys  
FGV Registrasievorm

**SIVEST**



**ENVIRONMENTAL IMPACT  
ASSESSMENT (EIA) FOR THE  
PROPOSED DEVELOPMENT OF THE  
THREE 75MW SENDAWO SOLAR  
PHOTOVOLTAIC (PV) ENERGY  
FACILITIES AND THE ASSOCIATED  
SUBSTATION AND 400kV POWER  
LINE NEAR VRYBURG, NORTH WEST  
PROVINCE**

**MINUTES OF THE  
FOCUS GROUP MEETING**

**Authorities**

**Held on  
Tuesday, 15 March 2016 at 14h00  
Lavender Lodge Guest House, 2 Molopo Road,  
Vryburg**

**North West Province**

---

**SiVEST Environmental (Pty) Ltd**

**Contact:** Lynsey Rimbault

**Address:** PO Box 2921  
51 Wessels Road  
Rivonia 2128

**Tel:** 011 798 0600

**Fax:** 011 803 7272

**E-mail:** [lynseyr@sivest.co.za](mailto:lynseyr@sivest.co.za)

---

**Draft Minutes prepared by:**

**Stephan Jacobs**

Please address any comments to Lynsey Rimbault at the above address

# TABLE OF CONTENTS

1	WELCOME, INTRODUCTIONS.....	1
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4	PROJECT CONTEXT AND OVERVIEW .....	1
5	DISCUSSION SESSION AND QUESTIONS.....	2
6	CLOSURE AND WAY FORWARD.....	2

## YOUR COMMENTS ON THE DRAFT MINUTES

Your comments on these draft Minutes will be appreciated. In particular, we request you to verify that your comments during the meeting have been minuted correctly. **It is important to note that the draft Minutes are not verbatim and any comments and questions raised by the technical specialists and the project proponent are not included in the discussion document.** Please address your comments, in writing (preferably email) to Lynsey Rimbault at the address given on the cover page on or before **Wednesday 11 May 2016**.

## FOCUS GROUP MEETING

**Venue:** Lavender Lodge Guest House, 2 Molopo Road, Vryburg  
**Date:** Tuesday, 15 March 2016  
**Time:** 14h00 – 15h30

### 1 WELCOME, INTRODUCTIONS

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Nicolene Venter welcomed everyone who attended the Focus Group Meeting (FGM) and thanked everyone for attending. She then proceeded to discuss the agenda of the meeting. Nicolene Venter introduced herself and noted that Zitholele Consultants have been appointed by SiVEST to assist with the Public Participation Process (PPP) for the proposed projects. Nicolene Venter asked if the representatives from SiVEST and BioTherm Energy which were present at the meeting could please introduce themselves and explain their roles with regards to the proposed projects. She explained the reason for having all of the representatives from SiVEST and BioTherm Energy present at the meeting. Nicolene Venter asked if the representatives present at the meeting could introduce themselves. Nicolene Venter asked all of the attendees for permission to record the meeting and explained that it will be used for minute taking purposes. Permission was given by all of the attendees to record the meeting.

### 2 MEETING ATTENDEES

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The Focus Group Meeting (FGM) was attended by representatives from SiVEST, Zitholele, BioTherm Energy, Telkom, the Naledi Local Municipality, Agriculture North West, and the local Farmers Union. A copy of the Attendance Record is attached as **Annexure A**.

### 3 PURPOSE OF THE MEETING

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Nicolene Venter informed the attendees that the purpose of the FGM was to:

- To provide an overview of the proposed project;
- To provide feedback on the findings as documented in the EIA phase specialist reports;
- To provide an opportunity to raise comments and/or concerns regarding the proposed project; and
- To record comments, issues and concerns raised.

Nicolene Venter informed all of the attendees that abbreviations would be used throughout the presentation. She informed all the attendees that they should ask for clarity if they do not understand certain abbreviations or are uncertain about what the abbreviations stand for.

### 4 PROJECT CONTEXT AND OVERVIEW

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Lynsey Rimbault presented an overview of the proposed project explaining the background to the project, what the project would entail, what the EIA process entails, and the current status of the EIA process.

Refer to **Annexure B** for a copy of the presentation.

## **5 DISCUSSION SESSION AND QUESTIONS**

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Please refer to **Annexure C** for the discussion session.

## **6 CLOSURE AND WAY FORWARD**

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Nicolene Venter closed the meeting at approximately 15h30. She informed the attendees that the FGM minutes, presentation, and attendance record would be forwarded to everyone who attended the meeting.

## **Annexure A**

### **ATTENDANCE RECORD**



<b>SENDAWO SOLAR PROJECTS: AUTHORITY FOCUS GROUP MEETING ATTENDANCE RECORD</b>		
<b>First Name</b>	<b>Last Name</b>	<b>Company</b>
Irene	Bezuidenhout	BioTherm Energy
Eunice	Buthelezi	Telkom SA SOC Limited
Siphelele	Dunga	BioTherm Energy
Thulani	Koom	BioTherm Energy
Daniel	Lowings	BioTherm Energy
Arnold	Manamela	Naledi Local Municipality
George	Ramogogane	Naledi Local Municipality
Mpho	Talane	Naledi Local Municipality
Heleen	van den Heever	Telkom (SA) Ltd
Jaco	Venter	Agri North West
Lynsey	Rimbault	SiVEST
Stephan	Jacobs	SiVEST
Nicolene	Venter	Zitholele Consulting


## **Annexure B**

### **COPY OF PRESENTATION**

## ENVIRONMENTAL IMPACT ASSESSMENTS FOR THE PROPOSED DEVELOPMENT OF THE THREE SENDAWO 75MW SOLAR PHOTOVOLTAIC ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400KV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE

DEA Ref. No.: SENDAWO GRID: 14/12/16/3/3/2/894  
 SENDAWO PV SOLAR 1: 14/12/16/3/3/2/891  
 SENDAWO PV SOLAR 2: 14/12/16/3/3/2/892  
 SENDAWO PV SOLAR 3: 14/12/16/3/3/2/893

A PROFESSIONAL TEAM DELIVERING CREATIVE PROJECT SOLUTIONS



Consulting Engineers • Project Managers • Environmental Consultants • Town and Regional Planners

### FOCUS GROUP MEETING

PRESENTATION DATE: 15 March 2016

## AGENDA

- Welcome, introduction and apologies
- Purpose and conduct of meeting
- Background to the proposed development
- Environmental process followed and findings
- Discussion session
- Closure

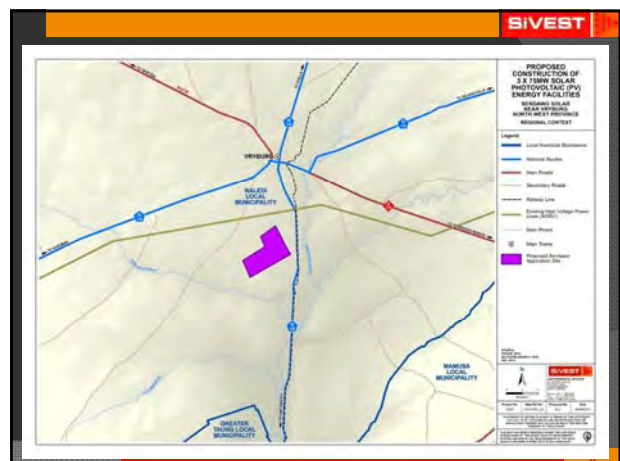
## PURPOSE OF MEETING

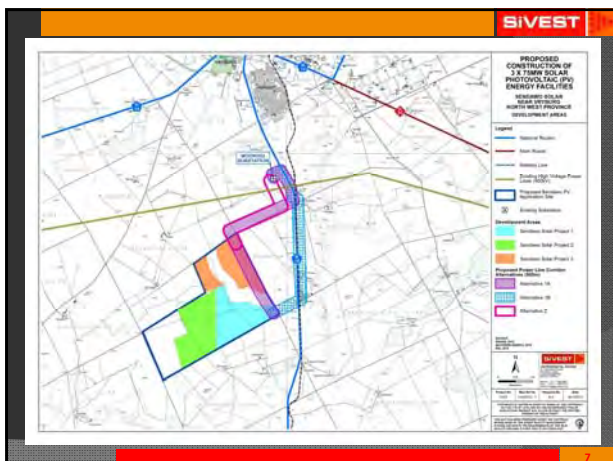
- To provide an overview of the proposed project
- To provide feedback on the findings as documented in EIA phase specialist reports
- Provide an opportunity to raise comments and/or concerns regarding the proposed project
- To record comments, issues and concerns raised

## PROJECT OVERVIEW

## PROJECT OVERVIEW

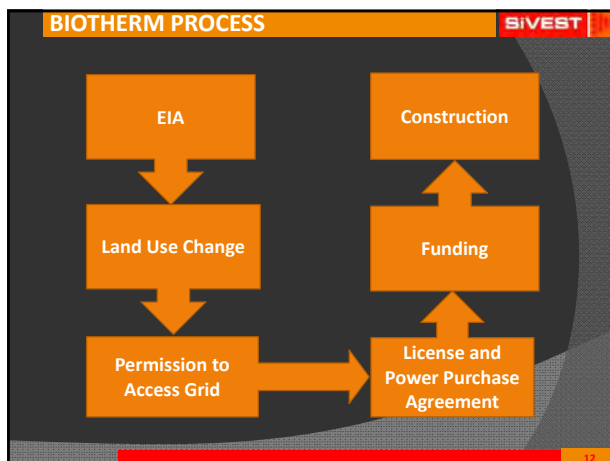
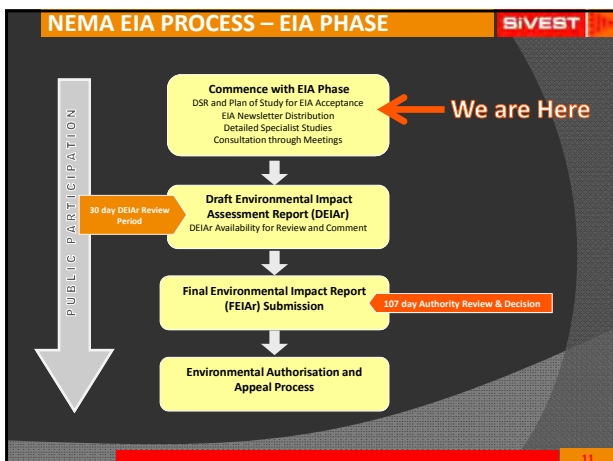
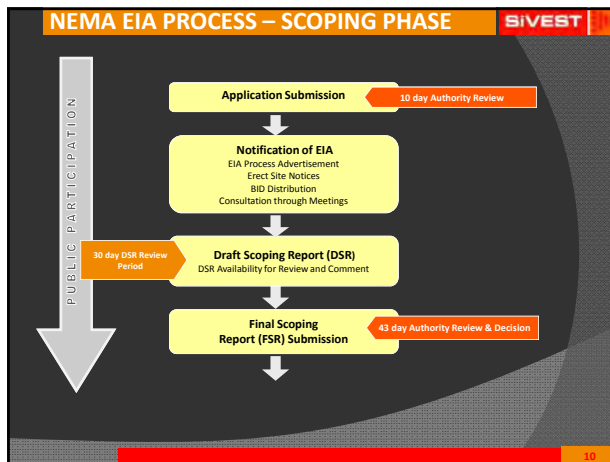
- **What does the proposed development entail?**
  - Construction of Sendawo 1, Sendawo 2 and Sendawo 3 Solar Photovoltaic (PV) energy facilities, each with a maximum generation capacity of 75MW.
    - Including associated infrastructure for each facility
      - New onsite substation
      - New power line from each PV facility to the Sendawo substation
      - Access road upgrades
      - Construction laydown area
      - Admin and warehouse building
  - Sendawo 400kV substation, and 400kV power line to connect the proposed substation to the existing Mookodi MTS
- **Why is the project being proposed?**
  - To generate electricity to feed into the national grid
  - Promote use of renewable energy
  - To help meet future energy consumption requirements





### PROJECT OVERVIEW

- Who is the independent EAP?**
  - SIVEST SA
- Why undertake an EIA?**
  - Legal requirement
  - Consider environmental impacts and mitigation measures
  - Provide stakeholders/I&APs the opportunity to participate
- Who is the applicant?**
  - BioTherm Energy
- Who is the decision-making authority?**
  - Department of Environmental Affairs (DEA)



# ENVIRONMENTAL FINDINGS


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- ## ENVIRONMENTAL FINDINGS
- EIA phase underway
    - Rating of significance of impacts
    - Compliance with Equator Principles
    - Compliance with all National legislation
    - Comparative assessment of on site alternatives
    - Environmental Management Programme
  - Environmental aspects being assessed
    - Biodiversity (flora and fauna)
    - Avifauna
    - Surface Water
    - Soils and Agricultural Potential
    - Visual
    - Heritage and Palaeontology
    - Socio-economic

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## BIODIVERSITY

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• Vegetation (Ghaap Plateaux Vaalbosveld) is classified as Least Threatened</li> <li>• However, Provincial Biodiversity Conservation Assessment identifies Critical Biodiversity Areas and Ecological Support Areas → buffer areas for pans, provincial corridor network and dolomite aquifer recharge zone.</li> <li>• Potential presence of:                             <ul style="list-style-type: none"> <li>• Red List plant species of the study area: <i>Lithops lesliei</i> and <i>Rennera stellata</i></li> <li>• One protected plant species, <i>Harpagophytum procumbens</i>.</li> <li>• Two protected tree species, <i>Acacia erioloba</i> and <i>Boscia albitrunca</i>.</li> <li>• Brown Hyaena, Honey badger, Southern African Hedgehog, Giant Bullfrog</li> </ul> </li> </ul>			
	Potential presence of Kori Bustard, Blue Crane, Secretarybird			
<b>Mitigation</b>	Re-siting components of the project to avoid pan depressions, formalising a rehabilitation programme, undertaking a botanical walk-through survey, undertaking search-and-rescue for any appropriate species, obtaining permits for any protected species that will be affected			



*Lithops lesliei*

Some issues related to the ecology of the site could result in potentially significant impacts but the seriousness of these impacts is not considered to be high.




*Acacia erioloba*

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## AVIFAUNA

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• The projects are located in the Grassland avifaunal endemic region which has the fourth highest number of endemic bird species in southern Africa.</li> <li>• An estimated 220 species could potentially occur at the core study area. Of these, 9 are South African Red Data species, 11 are southern African endemics and 22 are near-endemics.</li> <li>• The application site and immediate surroundings as a whole should therefore be regarded as moderately sensitive.</li> <li>• Highly sensitive areas are water troughs and rivers as these micro-habitats are potential focal points of bird activity.</li> </ul>			
<b>Impacts and Mitigation</b>	No fatal flaws were identified thus far, and the proposed development could therefore be authorised, provided all proposed mitigation measures are implemented			



*Marico Flycatcher*

Monitoring is ongoing and in depth statistical analyses will be performed on the full dataset after the monitoring has been completed.





*Scaly-feathered Finch*

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## SURFACE WATER

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• Vaal Primary Catchment (C32B quaternary catchment); Lower Vaal Water Management Area</li> <li>• The surrounding pan wetlands, drainage line and spring have a small chance of being affected from an indirect perspective should mitigation measures not be implemented.</li> </ul>			
	Four pan wetlands could potentially be affected.	Three pan wetlands could potentially be directly affected.	No pan wetlands would be directly affected.	Two pan wetlands could potentially be affected.
<b>Mitigation</b>	Preventing loss of wetland habitat, increased run-off, erosion and sedimentation			



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## SOILS AND AGRICULTURAL POTENTIAL

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>• Soils were all shallow to very shallow. Some rock outcrops occur in places in the landscape.</li> <li>• The soils are reddish-brown to brown, structureless to weakly structured</li> <li>• The shallow soils in the area and the low rainfall means that the only means of reliable cultivation would be by irrigation, there is no evidence of irrigation.</li> <li>• There are no areas of cultivation that were identified, only a few small, isolated areas of "Improved grassland".</li> <li>• This part of North West is well suited for grazing but grazing capacity is relatively low, around 12 ha/large stock unit.</li> </ul>			
<b>Impacts and Mitigation</b>	Due to low agricultural potential, little or no mitigation measures are required. The footprint of the development should be kept to a minimum, so that at least the effect on grazing land for livestock is reduced. To prevent erosion, disturbance should be minimised and any bare soil should be re-vegetated as soon as possible, other preventative measures may also be required.			


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### VISUAL

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>Study area has a natural visual character, with a rural or pastoral component.</li> <li>The study area is not generally valued for its tourism significance and is rated as having a low visual sensitivity.</li> <li>N18 highway is considered to be visually sensitive and the relatively high volumes of motorists would be visually exposed to the projects.</li> <li>Several scattered farmsteads are regarded as potentially sensitive visual receptors.</li> <li>Two sensitive receptors → Arthington Memorial Church and Tiger Kloof Educational Institution.</li> </ul>			
<b>Mitigation</b>	Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. Ensure that dust suppression techniques are implemented on all gravel access roads. Light fittings for security at night should reflect the light toward the ground and prevent light spill.			
	 Low visual impact during construction		 Medium visual impact during operation	

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### HERITAGE AND PALAEOLOGY

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Substation and Power Line
<b>General Findings</b>	<ul style="list-style-type: none"> <li>A total of 6 Stone Age findspots → mostly around pans and dried up streams.</li> <li>Most findspots have a low significance</li> <li>One site presented a large volume of Middle and Late Stone Age artefacts, including pieces of ostrich eggshell. This site could hold valuable information and is considered a more sensitive site with medium significance.</li> <li>There is a historic waterhole and spring with well defined Stromatolite (fossil) structures. A sinkhole with cave breccia is likely present in the landscape.</li> <li>The site falls on a very clear fault zone in the dolomite and could be associated with a cave system and sinkholes.</li> </ul>			2 findspots identified, both representing the Earlier and Middle Stone Age. Both findspots have low heritage significance and will require no further mitigation.
<b>Mitigation</b>	Sensitive sites will require mitigation work, including a controlled surface collection of the material and permits from SAHRA. Exclusion area recommended around the historic waterhole and spring.			
	The overall impact on heritage resources is seen as acceptable, mitigation measures address any impacts on heritage resources.			

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### SOCIO-ECONOMIC

	Sendawo PV 1	Sendawo PV 2	Sendawo PV 3	Sendawo Grid Connection
<b>General Findings</b>	<ul style="list-style-type: none"> <li>Area's most significant socio-economic challenge is lack of employment opportunities - community leaders and land owners.</li> <li>Projects that create opportunities for employment are supported by the local authorities.</li> <li>Development of the solar PV facilities in the area may attract further investment into the municipality.</li> <li>The project would generate positive socio-economic returns for the local economy and its community.</li> </ul>			
	<ul style="list-style-type: none"> <li>The farm is currently being used for livestock farming and game breeding. The project will not affect these operations, as they are expected to be moved to the adjacent farm.</li> </ul>		The project is not expected to jeopardise operations	
<b>Mitigation</b>	Risks of livestock theft, damage to property, and burglaries will need to be properly managed by the developer.			Care should be taken to not unduly negatively impact on agricultural production in the region.
				The location of infrastructure should allow for livestock to roam freely

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### LAYOUT ALTERNATIVES

LAYOUT ALTERNATIVES

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### LAYOUT ALTERNATIVES

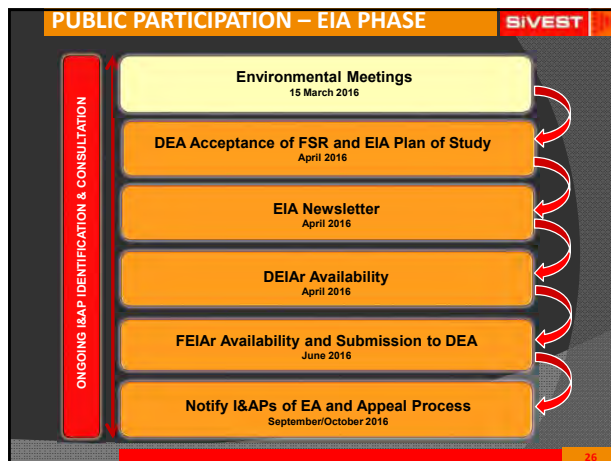
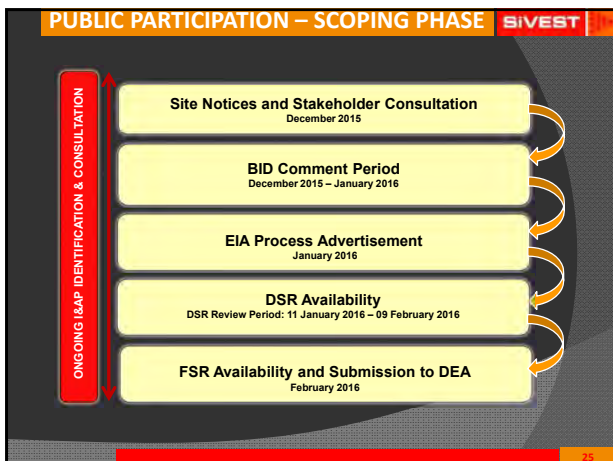
- Layout alternatives will be presented in the DEIAr.
- Design to incorporate specialist findings and stakeholder input.

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### PUBLIC PARTICIPATION

PUBLIC PARTICIPATION

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### DISCUSSION

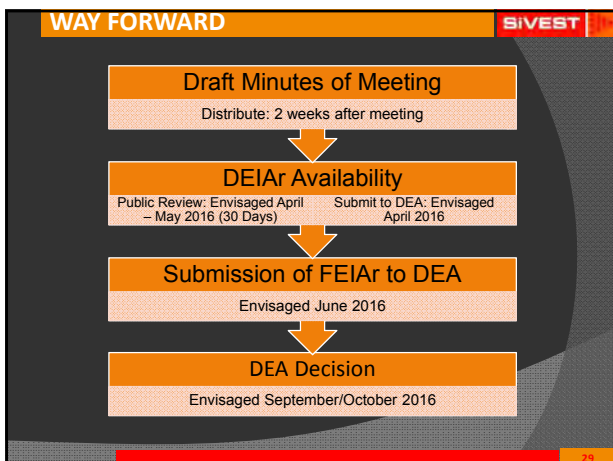
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### CONTACT DETAILS

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 🌐 Website: www.sivest.co.za

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## **Annexure C**

### **DISCUSSION DOCUMENT**



**ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) FOR THE PROPOSED  
DEVELOPMENT OF THE THREE 75MW SENDAWO SOLAR PHOTOVOLTAIC (PV)  
ENERGY FACILITIES AND THE ASSOCIATED SUBSTATION AND 400kV POWER  
LINE NEAR VRYBURG, NORTH WEST PROVINCE**

SENDAWO SUBSTATION & 400kV POWER LINE: 14/12/16/3/3/2/894

SENDAWO PV SOLAR 1: DEA Ref No: 14/12/16/3/3/2/891

SENDAWO PV SOLAR 2: DEA Ref No: 14/12/16/3/3/2/892

SENDAWO PV SOLAR 3: DEA Ref No: 14/12/16/3/3/2/893

**DRAFT DISCUSSION DOCUMENT  
FOCUS GROUP MEETING: AUTHORITIES**

Lavender Lodge Guest House, 2 Molopo Road, Vryburg

**Tuesday, 15 March 2016 at 14h00**

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5.	Project Related Comments/Issues .....	5
6.	EIA Process Related Comments/Issues.....	6

Comments / concerns / issues have been categorised according to environmental impact and thereafter according to SURNAME.

The comments / concerns / issues captured are not verbatim, but a summary.

### ABBREVIATIONS:

DEA	Department of Environmental Affairs	DoE	Department of Energy
DWS	Department of Water and Sanitation	EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner	EMPr	Environmental Management Programme
EWT	Endangered Wildlife Trust	PP	Public Participation
SKA	Square Kilometre Array		

Issue/Comment	Raised By & When	Response
<b>1. Avifauna Related Comments/Issues</b>		
<p>Enquired about the relevance of vultures with regards to impacted bird species in the study area as they were not mentioned in the presentation although there are vultures present in the study area.</p>	<p>VENTER, Jaco Agri North West</p>	<p>The presentation was a summary of the key findings as documented in the specialist's report, therefore not all the specialist's finding could be included in the presentation. The full list of potentially affected bird species will be included in the avifaunal report that forms part of the DEIRs. <b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p> <p><b>Post Meeting Note:</b> Cape Vultures and White Backed Vultures are both identified in the avifaunal specialist reports as species that could potentially be affected by the proposed projects, and the potential impact on these species was assessed. Any required mitigation measures will be incorporated into the final layout design and will be included in the EMPr.</p>
<p>Stated that they do not believe that the bird friendly structures are effective. The power line structures that currently kill vultures are the Eskom bird friendly ones. Stated that the Farmers' Union would therefore like to know the type of structure and what it looks like so that they can agree with it or not.</p>	<p>VENTER, Jaco Agri North West</p>	<p>The power line which will link the development to the Mookodi MTS will be 400kV. 132kV power lines will be used on site to transport the power from the solar panels to the internal/on-site substation. The proposed power line towers will consist of monopole structures for the 132kV power lines (internal connection) and lattice structures for the 400kV power line. <b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b></p> <p>It was agreed that drawings or pictures of the typical proposed power line tower structures will be attached to the draft minutes (if these are available). <b>Nicolene Venter, PP Practitioner, Zitholele Consulting</b></p> <p>The EIA and bird specialist reports will also be sent to Birdlife and the EWT for review and commenting purposes. <b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p>
<b>2. Soils &amp; Agricultural Potential Related Comments/Issues</b>		

<p>It was enquired as to whether the reflection off the solar panels would scare animals away and if visual impact of the panels would have an impact on the reproduction of livestock. He was particularly concerned about buffalo, other game and the less docile cattle species that are farmed in the area.</p>	<p>VENTER, Jaco Agri North West</p>	<p>The team is not aware of any study that has found impacts of solar panels on livestock reproduction. The impact of wind turbines on livestock has been investigated, but solar panels are stationary and not likely to affect animals on neighbouring farms. The main way the solar panels could affect livestock is by taking up grazing land. The property being proposed for the projects is a game farm. Animals will need to be moved off the site where the solar panels will be placed.</p> <p><b><i>Lynsey Rimbault, Environmental Consultant, SiVEST</i></b></p> <p>BioTherm currently have fixed panel operational facilities and there has been no evidence that animals are being scared away. Sheep still graze around the panels. Wild animals have been seen in close proximity to the facility on the security cameras which have been placed on the perimeter of the facility.</p> <p><b><i>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</i></b></p> <p>In Europe sheep are actually placed inside the site that contains the solar panels so that they can graze on the vegetation under the panels.</p> <p><b><i>Daniel Lowings, Project Manager, BioTherm Energy</i></b></p>
<p>The main concern regarding the reflection is on wild animals and certain livestock (such as Bramaan and Nguni cattle) which require quiet environments and are more easily frightened. It was requested that this impact to be investigated properly before the project is implemented in order to avoid any future problems.</p>	<p>VENTER, Jaco Agri North West</p>	<p>SiVEST is not aware of evidence of impacts of this nature, but the Biodiversity and Agricultural specialists will be consulted to enquire whether they can conduct a general research on the topic.</p> <p><b><i>Lynsey Rimbault, Environmental Consultant, SiVEST</i></b></p> <p><b><u>Post Meeting Note:</u></b></p> <p>The concern was forwarded to the biodiversity specialist who indicated that he had never heard of solar panels affecting reproduction or calving in buffalos. It is likely that the panels would have the same effect as a dam or other body of water that is reflective. A general internet search did not yield any evidence of panels affecting buffalo or cattle. To his</p>

		<p>knowledge, there is no proof in existence that solar panels have this effect. In the event that there are legitimate issues relating to this effect, the solution would be to screen the boundaries of the solar installation with some sort of visual barrier that would block any glare or reflection. This would only be necessary on the side of the solar installation towards which the panels are facing.</p> <p><b>David Hoare, Biodiversity Specialist</b></p>
<p>The concern regarding veld fires was raised and it was requested that the developer give assurance that no veld fires will be caused during the construction phase. The farmers struggle to get veld fires under control due to the type of vegetation present. It was enquired as to how the Sendawo PV site be managed/maintained in order to prevent veld fires.</p>	<p>VENTER, Jaco Agri North West</p>	<p>Fire management measures are covered in the draft EMPr. The draft EMPr will be available for review when the DEIARs are made available.</p> <p><b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p> <p>There will be a fire-prevention procedure in place during construction and fire detection and fire protection procedures present during the operation and maintenance (O&amp;M) phase. Fire suppression systems can also be implemented on site. Nothing has however been approved yet as the project is still in the design phase.</p> <p><b>Daniel Lowings, Project Manager, BioTherm Energy</b></p>
<b>3. Technical Related Comments/Issues</b>		
<p>Enquired about the life span of the solar plant.</p>	<p>RAMOGOGANE, George Assistant Manager: Properties Naledi Local Municipality</p>	<p>Usually around 20-25 years. The solar panels will however last longer than that. A re-assessment is done after the 20-25 years in order to determine whether the plant should continue to operate. If it is deemed that that the solar plant will no longer continue to operate after 20-25 years, it will be demolished and rehabilitated.</p> <p><b>Daniel Lowings, Project Manager, BioTherm Energy</b></p>
<p>Enquired about the type of tower structure that would be used for the proposed power line.</p>	<p>VENTER, Jaco Agri North West</p>	<p>The power line structures to be used will be determined by Eskom prior to the signing of the power purchaser agreement. Once avifaunal monitoring is done, the specialist will identify which sections of the power line will need to be fitted with perching devices, bird flight diverters etc. These are considered to be the mitigation measures for the potential</p>

		<p>death of vultures. All structures will therefore be Eskom approved and vulture friendly structures.</p> <p><b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b></p>
<b>4. Power Line Corridor Related Comments/Issues</b>		
<p>It was enquired whether the power line corridor runs along the Taung road (N18) from the Mookodi Substation to the site?</p>	<p>VENTER, Jaco Agri North West</p>	<p>This is correct. The corridor is proposed along the N18 for a short distance then it cuts across the N18 (if the power line is constructed on the eastern side of the N18) directly towards the application site. The power line servitude is not as wide as the corridor. The size of the power line corridor (500m) allows for the power line to be sited within the corridor so that it is appropriate in terms of landowners and environmental findings. Surface water features can therefore be avoided. The 500m corridor is being assessed at this stage.</p> <p><b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p>
<p>Raised concern regarding the power line corridor route alternatives being proposed. There is a landfill site and a poultry building that might fall within one of the proposed power line corridor alternatives. There is a possibility that the landfill site may be expanded in the future.</p>	<p>MANAME, Arnold Manager: Town Planning Division Naledi Local Municipality</p>	<p>The exact locations of the landfill site and poultry building will be plotted on the maps to investigate what possibilities are available to avoid these structures.</p> <p><b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p> <p>It was reiterated that the power line corridor is 500m wide in order to avoid structures (such as the landfill site and poultry building) when the route alignment for the power line is negotiated. It is standard Eskom practice not to construct a power line over existing structures but will rather go around it.</p> <p><b>Nicolene Venter, PP Practitioner, Zitholele Consulting</b></p>
<p>Wanted to clarify whether the local municipality preferred the power line corridor aligned along the N18 as it avoids the landfill site and the poultry development.</p>	<p>VENTER, Nicolene PP Practitioner Zitholele Consulting</p>	<p>Stated that this was correct, as it will reduce the compensation part of the servitude.</p> <p><b>Arnold Maname, Manager: Town Planning Division, Naledi Local Municipality</b></p>
<p>Enquired about the size of the power line servitude and how much land will be taken up by the servitude? This information will assist the Municipality to determine how much of the surrounding land will be available for agricultural purposes.</p>	<p>RAMOGOGANE, George Assistant Manager: Properties Naledi Local Municipality</p>	<p>The registered servitude for the 400kV power line is generally 47m wide, and this width will be negotiated with the registered landowner and registered against his/her/their title deed.</p> <p><b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b></p>

<p>A similar power line route was proposed by Eskom and it is believed that this power line route has been approved by the Municipality.</p>	<p>MANAME, Arnold Manager: Town Planning Division, Naledi Local Municipality</p>	<p>The project team thanked the attendee for the information and the project team will obtain the necessary information to verify this information. <b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p>
<p><b>5. Project Related Comments/Issues</b></p>		
<p>When will BioTherm be submitting their planning application with regards to land-use change for the proposed property?</p>	<p>MANAME, Arnold Manager: Town Planning Division Naledi Local Municipality</p>	<p>The land-use change application will be applied for after the project receives environmental authorisation. As soon as authorisation is granted this application process will be initiated. <b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b></p>
<p>Is this the same project that is being proposed on the Tiger Kloof Educational Centre (Farm Waterloo)? There is another project in the same area of which a similar presentation was made to the Municipality and a similar power line corridor is being proposed. It is recommended that the team laisse with Eskom to see what other projects are being proposed or have been approved in order to get a better idea of which power line corridor would be feasible.</p>		<p>The Tiger Kloof Educational Centre renewable energy project is a separate project. The DEIAR will include a Cumulative Impact Section which looks at all the other projects being proposed within close proximity of this proposed development and will includes a map showing all projects that have been authorised and are being proposed in the study area. <b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p>
<p>Asked whether SiVEST and/or BioTherm have received any shapefiles from the municipality indicating existing infrastructure?</p> <p>Are the landfill site and poultry building a Naledi Local Municipality initiative or is it a private initiative?</p>	<p>VENTER, Nicolene PP Practitioner Zitholele Consulting</p>	<p>No shapefiles were provided to date. <b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p> <p>The poultry farm was initiated by the Department of Rural Development as well as the Department of Agriculture. The ownership of the property has since been transferred to the Municipality and is currently managed by the local municipality. <b>Arnold Maname, Manager: Town Planning Division, Naledi Local Municipality</b></p>
<p>Who should SiVEST approach at the Municipality for information regarding existing infrastructure and demarcated areas? SiVEST needs a map or shapefile indicating the location of the landfill site and poultry development/building.</p>		<p>The Environmental Manager of the Naledi Local Municipality will forward the requested information. <b>Arnold Maname, Manager: Town Planning Division, Naledi Local Municipality</b></p>
<p>Wanted to know if Telkom requires any shapefiles?</p>		<p>It was confirmed that Telkom has everything they require at this stage. <b>Eunice Buthelezi, Ops- Manager: Planning, Telkom</b></p>

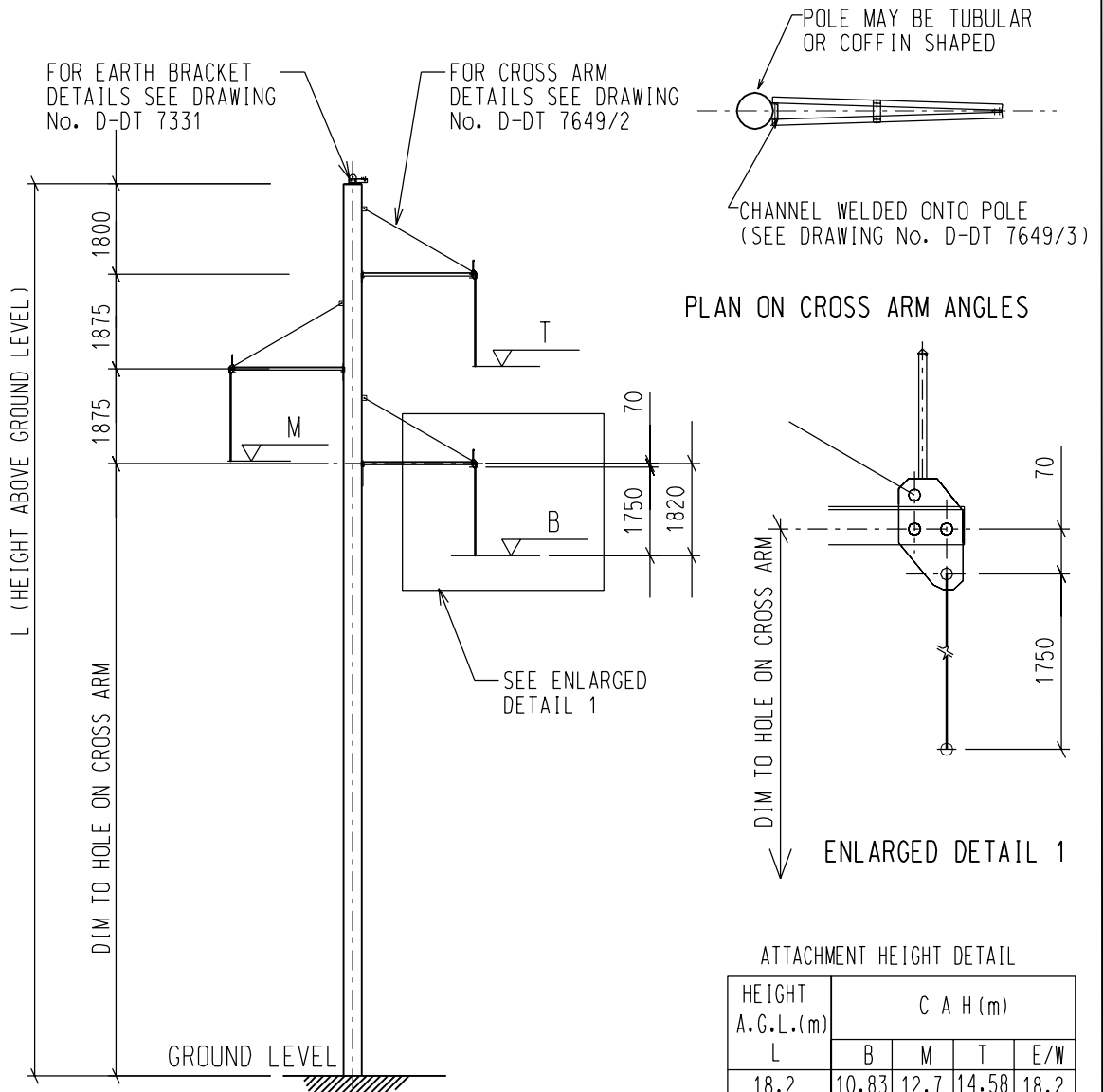
<p>Enquired about the planned date for construction.</p>	<p>VENTER, Jaco Agri North West</p>	<p>If everything goes according to plan i.e.:</p> <ul style="list-style-type: none"> <li>- Authorisation granted by October 2016;</li> <li>- Another 6 months is then required for permitting and approval purposes;</li> <li>- If project wins IPP Bid Submission in August 2017 another year is needed to financial closure, which could take up to a year;</li> <li>- Construction can start 6 months after power purchase agreement is signed</li> </ul> <p>If project wins in next bidding round the proposed projects will be operational by 2019. Projects might be re-bid several times, or could not be a preferred bidder at all.</p> <p><b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b></p>
<p>Is there a possibility that the IPP would pull out of all the projects and decide they are not bidding anymore?</p>	<p>VENTER, Nicolene PP Practitioner Zitholele Consulting</p>	<p>If there is no grid availability and the tariff is not suitable, then yes BioTherm would pull out. As long as there is grid availability the IPP can re-bid their project(s) until it gets authorised.</p> <p><b>Irene Bezuidenhout, Environmental Manager, BioTherm Energy</b></p>
<p><b>6. EIA Process Related Comments/Issues</b></p>		
<p>Wanted to know if there have been any objections to the proposed projects, because another renewable energy development in the area has been delayed due to issues with the public participation process undertaken. Emphasised the importance of following the correct procedures with regards the public participation process.</p>	<p>RAMOGOGANE, George Assistant Manager: Properties Naledi Local Municipality</p>	<p>No negative comments/feedback or objections have been received to date and it was confirmed that the legislative process is being followed in terms of the public participation process.</p> <p><b>Nicolene Venter, PP Practitioner, Zitholele Consulting</b></p>
<p>Enquired as to who would be the responsible official at the Municipality for submitting written comments on the Environmental Impact Assessment Report.</p>	<p>VENTER, Nicolene PP Practitioner Zitholele Consulting</p>	<p>Both Mpho Talane and Arnold Maname will be the responsible officials.</p> <p><b>Arnold Maname, Manager: Town Planning Division, Naledi Local Municipality</b></p>
<p>Enquired about the submission dates for the organs of state's written comments, and when should the comments be submitted by? Will SiVEST be communicating these dates to the organs of state?</p>	<p>MANAME, Arnold Manager: Town Planning Division Naledi Local Municipality</p>	<p>Draft Minutes of the meeting will be sent to all the attendees and those who submitted apologies within the next few weeks. It is envisaged that the DEIARs will be sent by end of April 2016. Once the Reports have been sent there will be 30 days for the Organs of State to submit their written comments.</p>



		<p>SiVEST will notify the Organs of State and registered I&amp;APs of the availability of the draft Reports via e-mail. Link to the DEIARs will be included in the e-mail notification. A CD containing the DEIAR will also be sent to the Organs of State to facilitate the commenting process.</p> <p><b>Lynsey Rimbault, Environmental Consultant, SiVEST</b></p> <p>Confirmed the feedback provided and add that SiVEST will be sending the Municipality a cover letter to the CD notifying them when the DEIARs are available as well as the review period dates. Two (2) e-mail reminders will be sent, one to be sent about a week before the comment and review period ends and the second to inform that the comment and review period has ended.</p> <p><b>Nicolene Venter, PP Practitioner, Zitholele Consulting</b></p>
<p>Wanted to know if there were any other special requests from the municipality's side that the team needs to be aware of?</p>	<p>VENTER, Nicolene PP Practitioner Zitholele Consulting</p>	<p>It was confirmed that the municipality prefers to receive the DEIARs in CD format.</p> <p><b>Arnold Maname, Manager: Town Planning Division, Naledi Local Municipality</b></p>
<p>It was advised that BioTherm should not follow the re-zoning process. If the re-zoning process for the property is followed the agricultural rights will be taken away and this is not favourable as the land can therefore not be used for anything else should the solar facility reach the end of its life span. It is recommended that BioTherm apply for an additional Land-use Right (i.e. apply for a secondary use as opposed to re-zoning). This way the property still maintains its agricultural right.</p>	<p>MANAME, Arnold Manager: Town Planning Division Naledi Local Municipality</p>	<p>The attendee was thanked for the advice and recommendation and confirms that BioTherm are planning on doing so.</p> <p><b>Daniel Lowings, Project Manager, BioTherm Energy</b></p>

## **Annexure D**

### **TYPICAL POWER LINE TOWER STRUCTURES**



ELEVATION ON POLE


PLAN ON CROSS ARM ANGLES

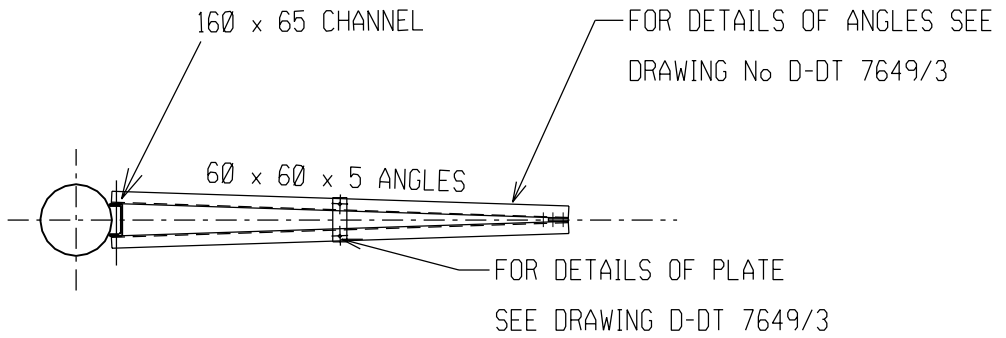
ENLARGED DETAIL 1

ATTACHMENT HEIGHT DETAIL

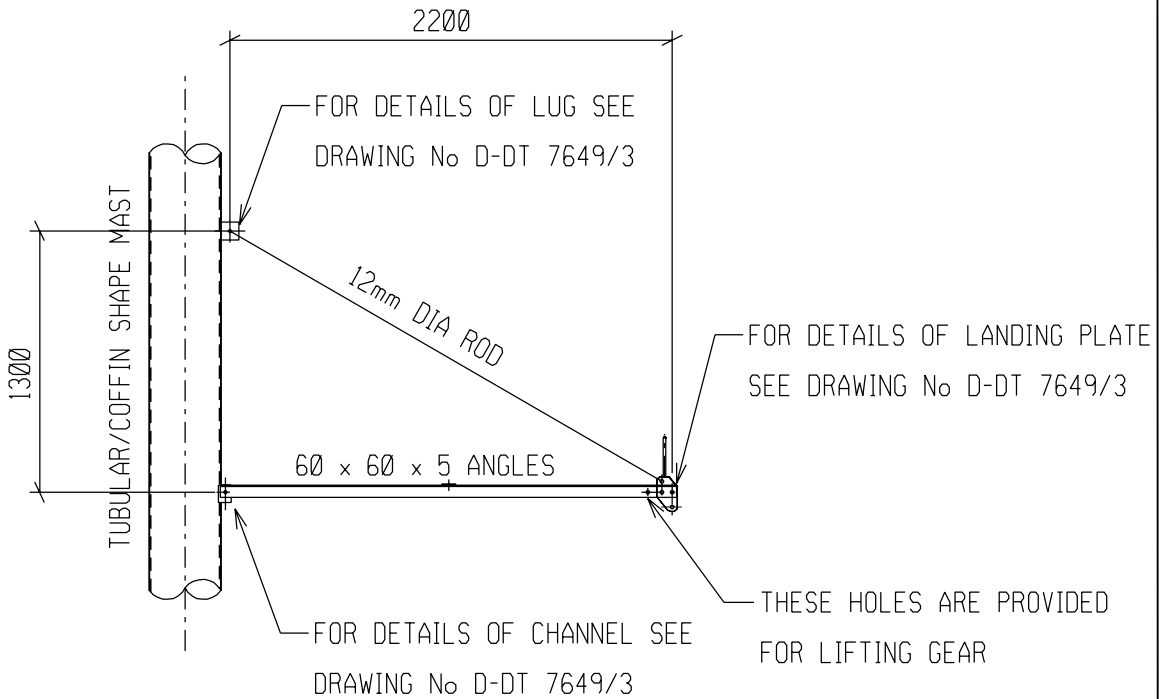
HEIGHT A.G.L.(m)	C A H (m)			
	B	M	T	E/W
18.2	10.83	12.7	14.58	18.2
19.2	11.83	13.7	15.58	19.2
20.1	12.73	14.6	16.48	20.1
21.2	13.83	15.7	17.58	21.2
22.7	15.33	17.2	19.08	22.7
24.2	16.83	18.7	20.58	24.2

THIS DRAWING IS RELEVANT FOR  
GUYED AND FREESTANDING STRUCTURES

Ø	AB	15.03 2002	FIRST ISSUE/EERSTE UITREIKING	SLR	RAB		
REV	AUTH MAG	DATE DATUM	REVISION/REVISIES INDEX REF/INDEKSVERW	BY DEUR	CHKD NAGES	D-DT-	REFERENCE DRAWINGS
DRG.TEK REGISTR				<p>DISTRIBUTION TECHNOLOGY 132KV SUSPENSION X-ARM GENERAL ARRANGEMENT FOR SINGLE STEEL POLE STRUCTURE</p>			
CHKD NAGES	RAB	16.03 2002					
DRAWN GETEKEN	SLR	15.03 2002					
SCALE SKAAL	NTS		APPROVED AB	CAD.REF:	D-DT 7649/1		REV
		26/04/2002	FILE No.:	0			




PLAN ON CROSS ARM ANGLES

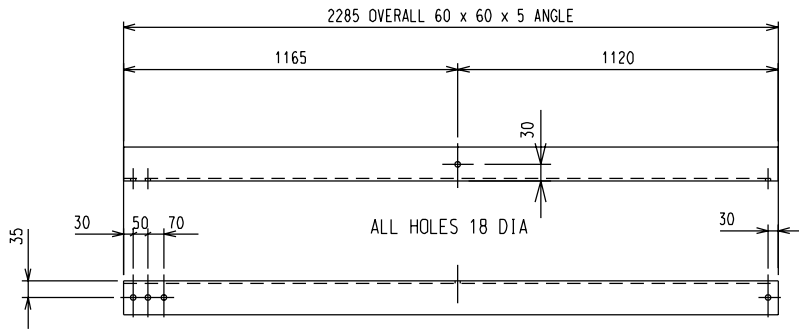


ELEVATION ON CROSS ARM

NOTE:

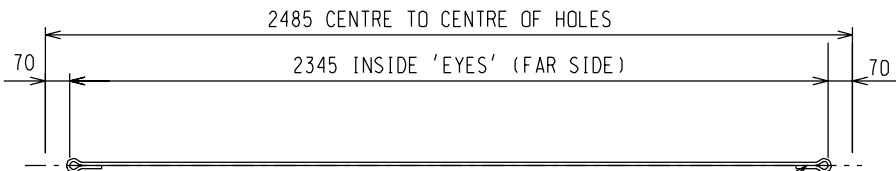
ALL BOLTS USED TO BE M16 GRADE 8.8 BOLTS

Ø	AB	15.03 2002	FIRST ISSUE/EERSTE UITREIKING	SLR	RAB						
REV	AUTH MAG	DATE DATUM	REVISION/REVISIES INDEX REF/INDEKSVERW	BY DEUR	CHKD NAGES	D-DT-	REFERENCE DRAWINGS				
DRG. TEK REGISTR				DISTRIBUTION TECHNOLOGY 132KV SUSPENSION X-ARM LAYOUT OF CROSS ARM							
CHKD NAGES	RAB	16.03 2002									
DRAWN GETEKEN	SLR	15.03 2002						APPROVED AB	CAD.REF:	D-DT 7649/2	
SCALE SKAAL	NTS							26/04/2002	FILE No.:		



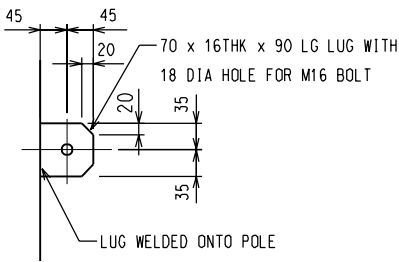
ONE ANGLE REQUIRED AS DRAWN  
ONE ANGLE REQUIRED TO OPP HAND

NOTE:  
ALL BOLTS USED  
TO BE M16 GRADE  
8.8 BOLTS



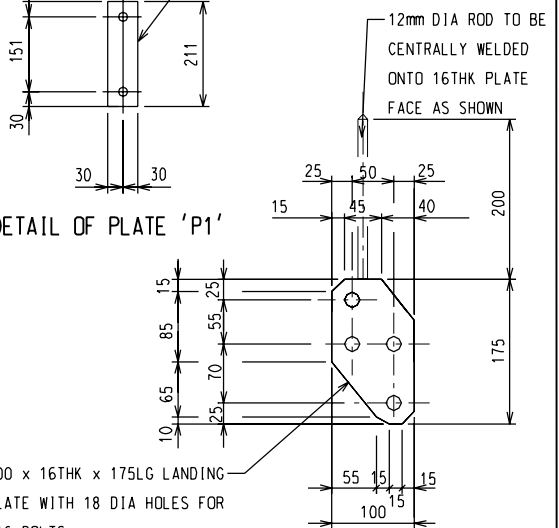
DETAIL OF 12mm DIA ROD

6mm FILLET WELD

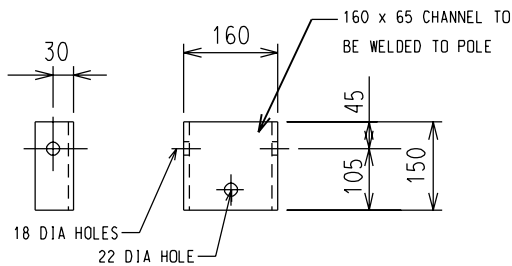


DETAIL OF LUG 'L1'

60 x 6THK FLAT BAR WITH  
2/18 DIA HOLES FOR M16 BOLTS




DETAIL OF PLATE 'P1'

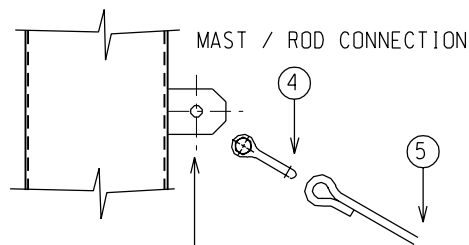


DETAIL OF CHANNEL CONNECTION

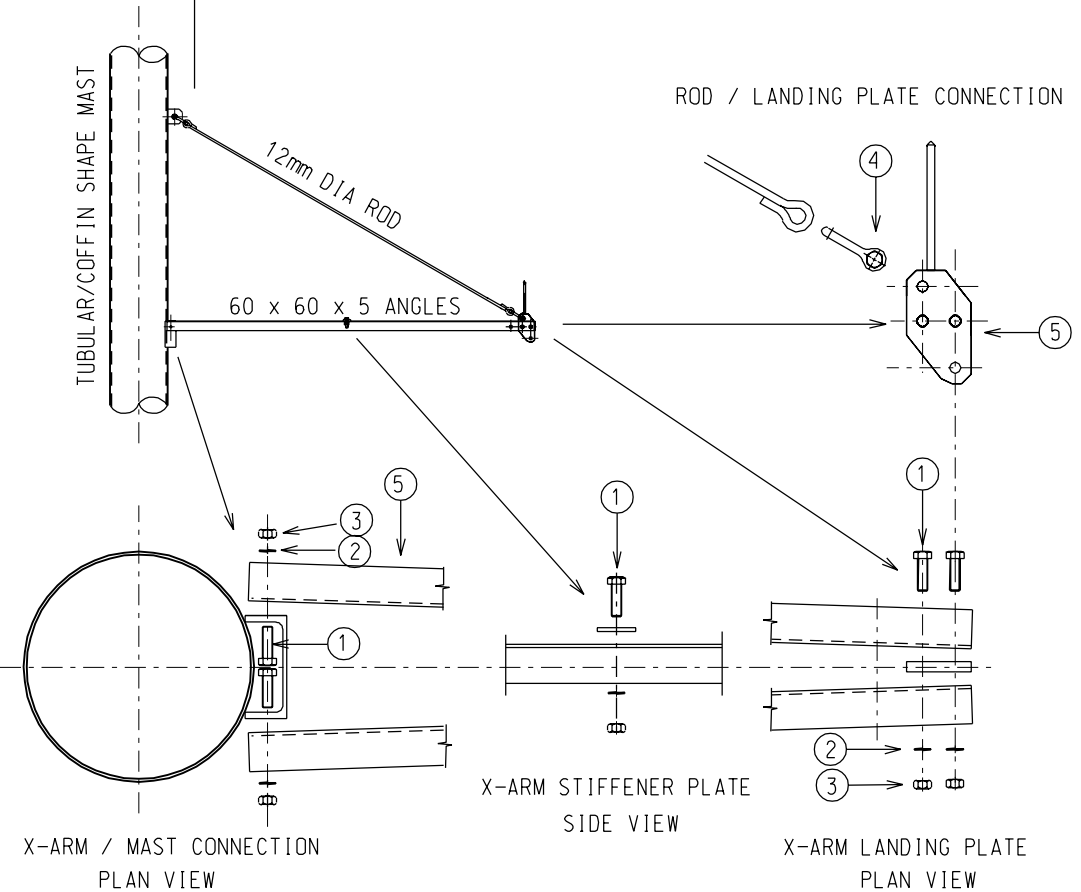
100 x 16THK x 175LG LANDING  
PLATE WITH 18 DIA HOLES FOR  
M16 BOLTS

DETAIL OF LANDING PLATE

Ø	AB	15.03 2002	FIRST ISSUE/EERSTE UITREIKING	SLR	RAB		
REV	AUTH MAG	DATE DATUM	REVISION/REVISIES INDEX REF/INDEKSVERW	BY DEUR	CHKD NAGES	D-DT-	REFERENCE DRAWINGS
DRG. TEK REGISTR				<p>DISTRIBUTION TECHNOLOGY 132KV SUSPENSION X-ARM FABRICATION DRAWING</p>			
CHKD NAGES	RAB	16.03 2002					
DRAWN GETEKEN	SLR	15.03 2002	APPROVED AB	CAD. REF:	D-DT 7649/3		REV
SCALE SKAAL	NTS		26/04/2002	FILE No.:			0




MASS OF CROSS ARM:  
 ANGLES (Total) = 20 kg  
 CONNECTIONS/PLATES = 10 kg  
 BOLTS = 1 kg



REF	DESCRIPTION	DRAWING NO.
1	SET SCREW, M16 x 50 LG GRADE 8.8	
2	WASHER, SPRING, M16	
3	NUT, M16	
4	SHACKLE, D 120KN	D-DT 7017
5	SUSP. ARM ASSEMB, 132KV	

REV	AUTH MAG	DATE DATUM	REVISION/REVISIES INDEX REF/INDEKSVERW	BY DEUR	CHKD NAGES	D-DT - REFERENCE DRAWINGS VERWYSINGSTEKENINGE
0	AB	15.03 2002	FIRST ISSUE / EERSTE UITREIKING	SLR	RAB	

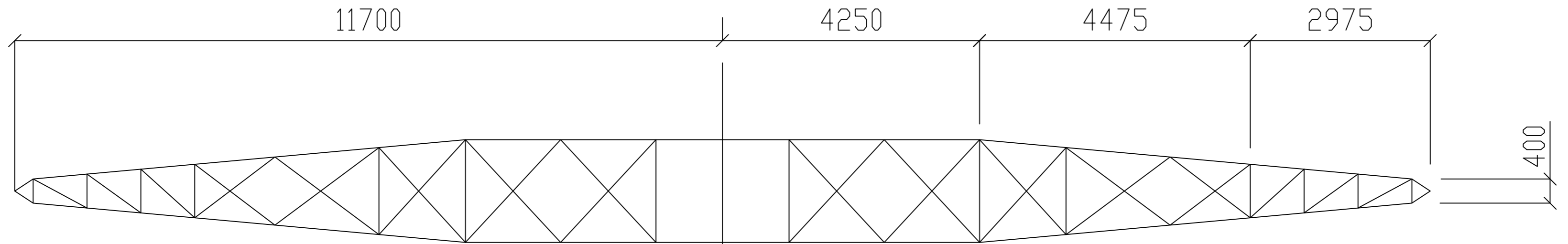
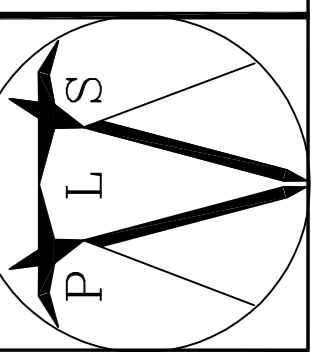
DRG,TEK REGISTR				DISTRIBUTION TECHNOLOGY 132KV SUSPENSION X-ARM ASSEMBLY		
CHKD NAGES	RAB	16.03. 2002				
DRAWN GETEKEN	SLR	15.03. 2002	APPROVED AB	CAD.REF:	D-DT 7649/4	REV
SCALE SKAAL	N.T.S.		26/04/2002	FILE No.:		0

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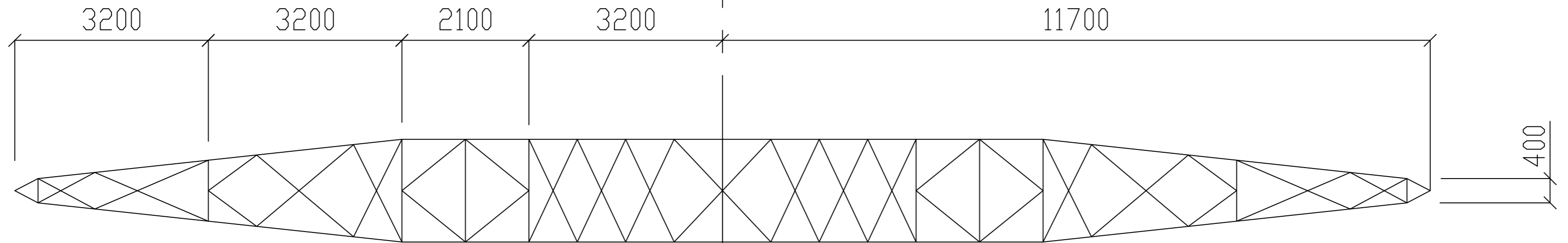
DATE:  
DWG. No 2103

PROJECT: 400 KV. TRANSMISSION LINE  
TITLE: SELF SUPP. SUSPENSION TOWER TYPE "518H"

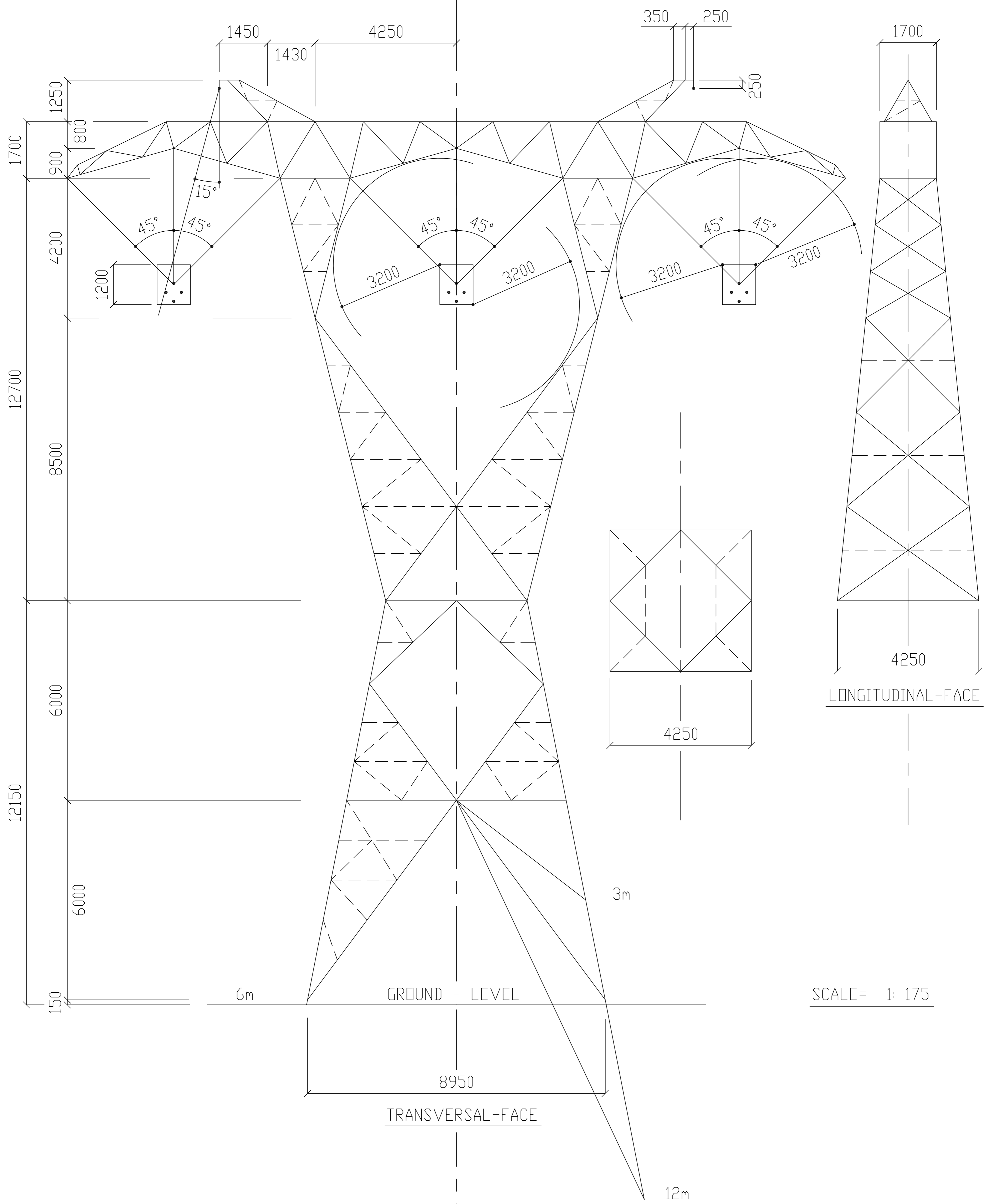
POWERLINES



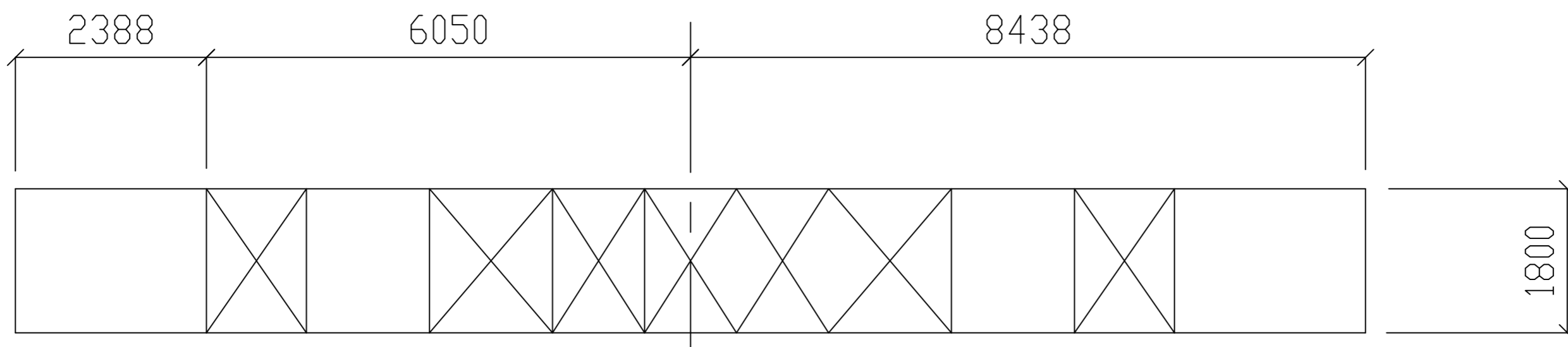
TOP VIEW



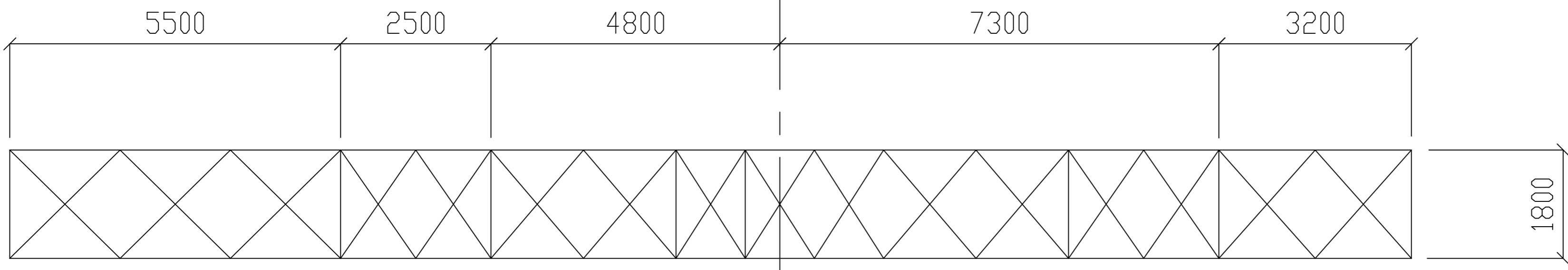
BOTTOM VIEW



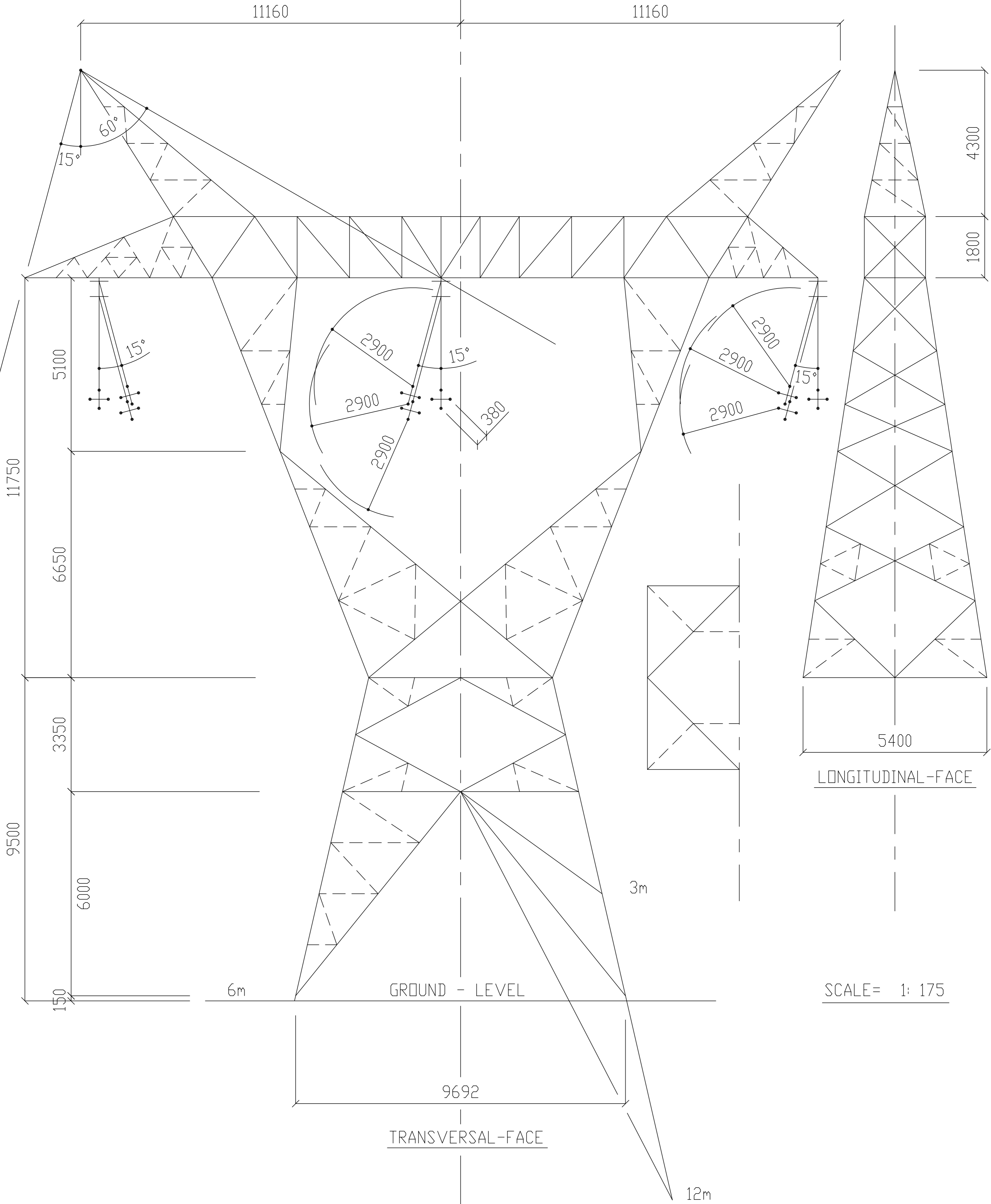
SCALE= 1: 175



TOP VIEW



BOTTOM VIEW

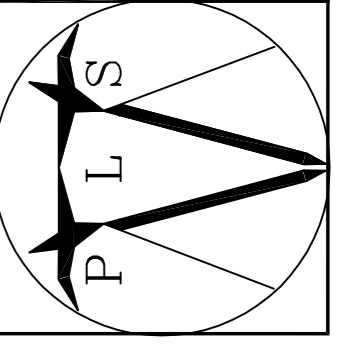


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DATE:  
DWG. No 2105

PROJECT: 400 KV. TRANSMISSION LINE  
TITLE: 0°-45° ANGLE STRAIN TOWER TYPE "518C"

POWERLINES



SCALE= 1: 175





## **Appendix 5H: Landowner Notifications**



**SIVEST**  
**Environmental**

51 Wessel Road, Rivonia  
PO Box 2921, Rivonia  
2128  
Gauteng, South Africa

Phone + 27 11 798 0600  
Fax + 27 11 803 7272  
Email info@sivest.co.za  
www.sivest.co.za



Your reference N/A  
Our reference 13303 - Sendawo  
Date 1 December 2015

Dear Sir/Madam

**ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPrs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE (DEA REFERENCE NUMBERS TO BE CONFIRMED)**

- **NOTIFICATION OF ENVIRONMENTAL IMPACT ASSESSMENT PROCESS TO LANDOWNER(S)/PERSON(S) IN CONTROL OF THE LAND**

In terms of the National Environmental Management Act (107 of 1998) (NEMA), Environmental Impact Assessment Regulations, 2014, Regulation 41(2)(b)(ii) (Government Notice No. R. 982), which states:

- (2) *The person conducting a public participation process must take into account any relevant guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potentially interested and affected parties of an application or proposed application which is subjected to public participation by;*
- (b) *Giving written notice, in any of the manners provided for in section 47D of the Act, to-*
- (ii) *owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken*

SiVEST SA (Pty) Ltd (hereafter referred to as SiVEST) would like to take this opportunity to inform you that we have been appointed as the independent Environmental Assessment Practitioner (EAP) by BioTherm Energy (Pty) Ltd (hereafter referred to as BioTherm) to undertake the Environmental Impact Assessment (EIA) processes for the proposed development of the three Sendawo 75MW solar photovoltaic (PV) energy facilities, namely Sendawo Solar 1, Sendawo Solar 2 and Sendawo Solar 3. In addition, BioTherm are proposing to construct an associated substation, namely Sendawo substation, and a 400kV power line in order to connect the proposed development to the existing Mookodi Main Transmission Substation (MTS). The PV energy facilities will be connected to the proposed Sendawo substation by 132kV power lines. The overall objective of the project is to generate electricity to feed into the national Eskom grid.

In order to accommodate the Department of Energy's (DoE) competitive bidding process for procuring renewable energy from Independent Power Producers in South Africa, each PV energy facility will be developed under a separate Special Purpose Vehicle (SPV) and therefore each requires a separate Environmental Authorisation. The Sendawo substation and 400kV power line will also require a separate Environmental Authorisation. Four (4) EIAs will therefore be undertaken, three (3) for the proposed Sendawo solar PV energy facilities (one for each PV facility) and one (1) for the proposed Sendawo substation and 400kV power line. Although each PV energy facility and the electrical infrastructure will be assessed separately, a single public participation process is being undertaken for all four (4) proposed projects. The potential environmental impacts associated with all four (4) projects will be assessed during the EIAs as part of a cumulative impact assessment.

To adhere to the requirements of Regulations 41(2)(b)(ii) of the NEMA EIA Regulations, 2014 (Government Notice No. R 982), SiVEST kindly request that you, as owner(s) or person(s) in control of, and occupier(s) of the land adjacent to or downstream of the proposed project, sign this notification letter as proof that the project team has notified you of the EIA process to be undertaken for the proposed above-mentioned project.

The affected farms are:

- Portion 1 of the farm Edinburgh No. 735

A Division of SiVEST SA (Pty) Ltd  
Offices: South Africa Durban, Johannesburg, Ladysmith, Pietermaritzburg, Richards Bay, Cape Town. Africa Harare (Zimbabwe)

Part of the SiVEST Group

SiVEST SA (Pty) Ltd Registration No 2000/006717/07 /a SiVEST

CESA

 GREEN BUILDING COUNCIL  
MEMBER ORGANISATION 2015

- Remainder of the farm Edinburgh No. 735
- Portion 1 of the farm Frankfort No. 672
- Portion 1 of the farm Rosendal No. 673
- Portion 2 of the farm Rosendal No. 673
- Remainder of the farm Rosendal No. 673
- Portion 2 of the farm Waterloo No. 730
- Portion 3 of the farm Waterloo No. 730
- Portion 4 of the farm Waterloo No. 730
- Portion 5 of the farm Waterloo No. 730
- Portion 7 of the farm Waterloo No. 730
- Portion 10 of the farm Waterloo No. 730
- Remainder of the farm Hartsboom No. 734
- Portion 1 of the farm Champions Kloof No. 731
- Portion 2 of the farm Champions Kloof No. 731
- Portion 10 of the farm Champions Kloof No. 731
- Remainder of the farm Brussels No. 736
- The farm Waterloo No. 992

Your co-operation is appreciated.

Yours sincerely




Andrea Gibb  
Environmental Practitioner  
SIVEST Environmental Division

.....  
I, Jill Wheeler (name and surname) of the property(ties) listed below have been notified by SiVEST regarding the Environmental Impact Assessment process for the proposed development of the three (3) Sendawo 75MW solar photovoltaic (PV) energy facilities, and the associated substation and 400kV power line near Vryburg, North West Province.

The following property(ties) are owned/managed/occupied as a tenant:

FARM NAME(s)	PORTION NO.	OWNER/MANAGER/OCCUPIER (tenant)
Brussels No 736	Remainder	Jill Wheeler
		Owner
		(Crambdaaf Trust)

The property information provided above is a true reflection.

  
NAME & SURNAME

Jill Wheeler  
SIGNATURE

SIGNED ON: 04 December 2015

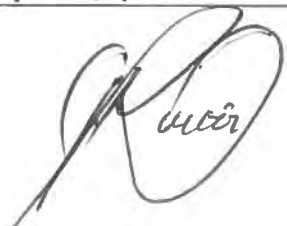


## LANDOWNER CONSENT FORM

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) AND ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED DEVELOPMENT OF THE Landcamp PV**

Facilities x3 and the associated Substations and 400 kV Power Lines

**NEAR VRYBURG, NORTH WEST PROVINCE**

<b>Property Details:</b>	Remainder of Warstboom No 734
<b>Registered Title Deed Owner</b>	Mr Nicolaus and Mrs Catharina Petronella van Rooyen
<b>Full name(s) &amp; Surname of Owner/Occupier/Legal Representative of land:</b>	Nico van Rooyen
<b>Identification Number:</b>	<del>60024</del> 60024 508 7086
<b>Postal Address:</b>	Postbus 2924 Vryburg 8600
<b>Telephone Number:</b>	—
<b>Fax Number:</b>	—
<b>Cell Phone Number:</b>	083 306 5775
<b>E-mail Address:</b>	n.a.
<b>SIGNATURE</b>	

**SiVEST  
Environmental**

51 Wessel Road, Rivonia  
PO Box 2921, Rivonia  
2128  
Gauteng, South Africa

Phone + 27 11 798 0600  
Fax + 27 11 803 7272  
Email info@sivest.co.za  
www.sivest.co.za



Your reference N/A  
Our reference 13303 - Sendawo  
Date 1 December 2015

Dear Sir/Madam

**ENVIRONMENTAL IMPACT ASSESSMENTS (EIAs) AND ENVIRONMENTAL MANAGEMENT PROGRAMMES (EMPRs) FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE (DEA REFERENCE NUMBERS TO BE CONFIRMED)**

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- (b) *Giving written notice, in any of the manners provided for in section 47D of the Act, to-*
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To adhere to the requirements of Regulations 41(2)(b)(ii) of the NEMA EIA Regulations, 2014 (Government Notice No. R 982), SiVEST kindly request that you, as owner(s) or person(s) in control of, and occupier(s) of the land adjacent to or downstream of the proposed project, sign this notification letter as proof that the project team has notified you of the EIA process to be undertaken for the proposed above-mentioned project.

The affected farms are:

- Portion 1 of the farm Edinburgh No. 735

- Remainder of the farm Edinburgh No. 735
- Portion 1 of the farm Frankfort No. 672
- Portion 1 of the farm Rosendal No. 673
- Portion 2 of the farm Rosendal No. 673
- Remainder of the farm Rosendal No. 673
- Portion 2 of the farm Waterloo No. 730
- Portion 3 of the farm Waterloo No. 730
- Portion 4 of the farm Waterloo No. 730
- Portion 5 of the farm Waterloo No. 730
- Portion 7 of the farm Waterloo No. 730
- Portion 10 of the farm Waterloo No. 730
- Remainder of the farm Hartsboom No. 734
- Portion 1 of the farm Champions Kloof No. 731
- Portion 2 of the farm Champions Kloof No. 731
- Portion 10 of the farm Champions Kloof No. 731
- Remainder of the farm Brussels No. 736
- The farm Waterloo No. 992

Your co-operation is appreciated.

Yours sincerely



Andrea Gibb  
Environmental Practitioner  
**SiVEST Environmental Division**



I FRANCIS SEECO (name and surname) of the property(ties) listed below have been notified by SiVEST regarding the Environmental Impact Assessment process for the proposed development of the three (3) Sendawo 75MW solar photovoltaic (PV) energy facilities, and the associated substation and 400kV power line near Vryburg, North West Province.

The following property(ties) are owned/managed/occupied as a tenant:

FARM NAME(s)	PORTION NO.	OWNER/MANAGER/OCCUPIER (tenant)
Waterloo No 730	Remd 3	lessee

The property information provided above is a true reflection.

A.F. SEECO  
NAME & SURNAME

  
SIGNATURE

SIGNED ON: 04. 12. 2015







**Appendix 5l:  
Distribution to Organs of State**



**ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF THE THREE (3) SENDAWO 75MW SOLAR PHOTOVOLTAIC (PV) ENERGY FACILITIES, AND THE ASSOCIATED SUBSTATION AND 400kV POWER LINE NEAR VRYBURG, NORTH WEST PROVINCE**

**DISTRIBUTION OF THE DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT (DEIAR) TO ORGANS OF STATE FOR COMMENT**

TITLE	SURNAME	NAME	POSITION	POSTAL ADDRESS	EMAIL ADDRESS
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## **Appendix 6: Specialist Studies**





## **Appendix 6A: Biodiversity Assessment**





## **ENVIRONMENTAL IMPACT REPORT:**

Ecological study on the potential impacts of the proposed BioTherm Sendawo power line and substation near Vryburg in the North West Province

Prepared by

Dr David Hoare  
(Ph.D., Pr.Sci.Nat.)

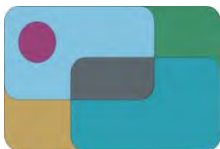
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for

SiVEST SA (Pty) Ltd  
P O Box 2921,  
Rivonia. 2128

10 March 2016

**REPORT VERSION: 1st Draft**



**David Hoare Consulting cc**  
**Biodiversity Assessments, Vegetation Description /**  
**Mapping, Species Surveys**

## **DECLARATION OF INDEPENDENCE & SUMMARY OF EXPERTISE**

### **Appointment of specialist**

David Hoare of David Hoare Consulting cc was commissioned by SiVEST SA (Pty) Ltd to provide specialist consulting services for the Environmental Impact Assessment for the proposed construction of the Sendawo Solar power line near Vryburg in the North West Province. The consulting services comprise an assessment of potential impacts on the general ecology in the study area by the proposed infrastructure.

### **Details of specialist**

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### **Summary of expertise**

Dr David Hoare:

- Has majors in Botany and Zoology with distinction from Rhodes University, Grahamstown, an Honours Degree (with distinction) in Botany from Rhodes University, an MSc (cum laude) from the Department of Plant Science, University of Pretoria, and a PhD in Botany from the Nelson Mandela Metropolitan University, Port Elizabeth with a focus on species diversity.
- Registered professional member of The South African Council for Natural Scientific Professions (Ecological Science, Botanical Science), registration number 400221/05.
- Founded David Hoare Consulting cc, an independent consultancy, in 2001.
- Ecological consultant since 1995, with working experience in Gauteng, Mpumalanga, Limpopo, North West, Eastern Cape, Western Cape, Northern Cape and Free State Provinces, Tanzania, Kenya, Mozambique and Swaziland.
- Conducted, or co-conducted, over 350 specialist ecological surveys as an ecological consultant. Areas of specialization include general ecology, biodiversity assessments, vegetation description and mapping, plant species surveys and remote sensing of vegetation. Has undertaken work in grassland, thicket, forest, savannah, fynbos, coastal vegetation, wetlands and nama-karoo vegetation, but has a specific specialization in grasslands and wetland vegetation.
- Published six technical scientific reports, 15 scientific conference presentations, seven book chapters and eight refereed scientific papers.
- Attended 15 national and international congresses & 5 expert workshops, lectured vegetation science / ecology at 2 universities and referee for 2 international journals.

## **Independence**

David Hoare Consulting cc and its Directors have no connection with the proponent. David Hoare Consulting cc is not a subsidiary, legally or financially, of the proponent. Remuneration for services by the proponent in relation to this project is not linked to approval by decision-making authorities responsible for authorising this proposed project and the consultancy has no interest in secondary or downstream developments as a result of the authorisation of this project. David Hoare is an independent consultant to SiVEST SA (Pty) Ltd and has no business, financial, personal or other interest in the activity, application or appeal in respect of which he was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances that compromise the objectivity of this specialist performing such work.

## **Conditions relating to this report**

The findings, results, observations, conclusions and recommendations given in this report are based on the **author's best scientific and professional knowledge as well as available information**. David Hoare Consulting cc and its staff reserve the right to modify aspects of the report including the recommendations if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of this report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

## EXECUTIVE SUMMARY

David Hoare Consulting cc was appointed by SiVEST SA (Pty) Ltd to undertake a general ecology assessment of the study area. This report provides details of the results of the Scoping Phase study, based on a desktop assessment of the study area and mapping from aerial imagery. The study area is located in the North West Province approximately 10 km to the south of Vryburg.

The vegetation type that occurs on site (Ghaap Plateaux Vaalbosveld) is classified as Least Threatened and also has a wide distribution and extent. The natural vegetation on the sites is therefore not considered from this perspective to have high conservation status. The area is not within a Centre of Plant Endemism, nor does it occur in close proximity to an area identified as part of the National Parks Area Expansion Strategy. However, the site is within areas identified in the Provincial Conservation Assessment to be of importance for various reasons, including as buffer areas for pans, as part of a Provincial corridor network and as part of a dolomite aquifer recharge zone.

Local factors that may lead to parts of the sites having elevated ecological sensitivity are the potential presence of the following:

- Presence of natural vegetation on site, some of which is of elevated conservation priority.
- Potential presence of two plant species of concern, the succulent, *Lithops lesliei* subsp. *lesliei*, listed as Near Threatened, and the herb, *Rennera stellata*, listed as Vulnerable.
- Potential presence of one protected plant species, *Harpagophytum procumbens*.
- Potential presence of two protected tree species, *Acacia erioloba* and *Boscia albitrunca*.
- Presence of pan depressions.
- Potential presence of the following animals of potential conservation concern:
  - Brown Hyaena (NT)
  - Honey badger (NT)
  - Southern African Hedgehog (NT)
  - Giant Bullfrog (NT/LC)
  - Kori Bustard (VU),
  - Blue Crane (VU),
  - Secretarybird (NT).
- Potential invasion of natural habitats by alien invasive plants, thus causing additional impacts on biodiversity features.

Potential risks (impacts) to the ecological receiving environment are as follows:

1. Loss of indigenous natural vegetation during construction;
2. Impacts on listed plant species;
3. Impacts on a protected plant species;
4. Impacts on protected tree species;
5. Impacts on pan depressions;
6. Mortality of populations of sedentary species during construction (terrestrial and aquatic);
7. Displacement of populations of mobile species (terrestrial);
8. Mortality of bird species of concern due to secondary factors, such as collisions with overhead power lines;
9. Introduction and/or spread of declared weeds and alien invasive plants in terrestrial habitats.

A summary and comparison between pre- and post-mitigation phases is provided below.

<b>Environmental parameter</b>	<b>Issues</b>	<b>Rating prior to mitigation</b>	<b>Average</b>	<b>Rating post mitigation</b>	<b>Average</b>
Indigenous natural vegetation	Loss (substation)	-38		-38	
Indigenous natural vegetation	Loss (power lines)	-13		-12	
Protected plant species	Loss of individuals	-11		-9	
Protected trees	Loss of individuals	-14		-13	
Pan depressions	Damage, loss of vegetation	-28		-6	
Sedentary fauna	Loss of individuals	-10		-7	
Bird species of conservation concern	Collision with power lines	-26		-11	
Natural habitat	Invasion by alien invasive plant species leading to habitat loss and/or degradation	-28		-11	
			<b>- 21.0</b>		<b>-13.4</b>
			Low Negative Impact		Low Negative Impact

Due to the similarity of impacts, there is no preference between the two proposed power line route alternatives.

Cumulative impacts of this project in combination with similar projects is likely to be of low significance, with the exception of impacts on pan depressions, which may possibly be moderate due to impacts from other sources.

Proposed mitigation measures include re-siting components of the project (mostly power line tower structures) to avoid sensitive features, compiling a surface runoff and stormwater management plan, formalising a rehabilitation programme, undertaking a botanical walk-through survey, undertaking search-and-rescue for any appropriate species, obtaining permits for any protected species that will be affected, undertaking a search and rescue of plants that can be rescued, compiling an alien plant management plan and undertaking regular monitoring.

The report concludes that there are some issues related to the ecology of the site that could result in potentially significant ecological impacts. The seriousness of these impacts is not considered to be high. There are a number of impacts for which there is a low probability that they will occur, but if they do occur then it requires permits to be issued, either by National or Provincial authorities and additional field data is required for the permit applications.

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## **INTRODUCTION**

### **Terms of reference and approach**

SiVEST SA (Pty) Ltd was appointed to undertake an application for environmental authorisation through an Environmental Impact Assessment (EIA) for the proposed BioTherm Sendawo sub-station and power line near Vryburg in the North West Province. Two possible sub-station sites have been proposed, Substation Alternative 1, with two possible power line corridor alternatives, and Substation Alternative 2, with a single power line corridor proposed.

The purpose of the EIA is to identify environmental impacts associated with the proposed infrastructure.

On 2 October 2015 David Hoare Consulting cc was appointed by SiVEST SA (Pty) Ltd to undertake a Biodiversity (flora and fauna) assessment of the study area. It was agreed that the study would include the following:

#### **Scoping Phase:**

- Conduct a desktop scoping study to broadly describe and characterise the study area in terms of:
  - Vegetation types and/or habitats;
  - National conservation status of major vegetation types;
  - Red Data (threatened and endangered) flora, fauna and avifauna species;
  - The potential presence of trees protected according to the National Forests Act and fauna and flora protected under the National Environmental Management: Biodiversity Act;
  - Important Bird Areas (IBAs) and Critical Biodiversity Areas (CBAs);
  - The general status of vegetation on site; and
  - Potential impact on biodiversity, sensitive habitats and ecosystem functioning.
- Compile scoping level biodiversity report for the Sendawo PV facilities including (but not limited to) the following aspects:
  - Introduction;
  - Legislative background as applicable to the proposed activity;
  - High level description of the environmental baseline;
  - Identification of gaps in terms of the environmental baseline;
  - Methodology;
  - High level identification and mapping of biodiversity (fauna and flora) sensitive areas within the proposed application site (all sensitive areas within the development site must be provided to SiVest as shapefiles);
  - Potential anticipated impacts related to biodiversity (fauna and flora);
  - Recommendations for further assessment; and
  - Conclusion.

#### **Impact Assessment Phase:**

- Undertake field investigations to assess and confirm the patterns identified during the desktop assessment.
- Compile impact level biodiversity reports for the Sendawo power line alternatives including (but not limited to) the following aspects:
  - Introduction;
  - Legislative background as applicable to the proposed activity;
  - Updated environmental baseline;
  - Methodology;

- Identification and mapping of biodiversity (fauna and flora) sensitive areas within the application site based on field investigation and findings (all sensitive areas within the development site must be provided to SiVEST as shapefiles);
  - Assessment of the significance of the proposed development on flora, fauna and ecology during the Pre-construction, Construction, Operation, Decommissioning **Phases (using SiVEST's Impact Assessment Methodology)**;
  - Findings (maps to be created and shapefiles submitted);
  - Alternatives Assessment (alternatives will be provided);
  - Implications of specialist findings for the proposed development (e.g. permits, licenses, etc.);
  - Cumulative impact identification and assessment;
  - Recommend mitigations measures and provide recommendations in order to minimize the impact of the proposed development on flora, fauna, ecology, etc.; and
  - Conclusion.
- **Update and amend the draft report according to SiVEST's comments and resubmit final report for inclusion in the Environmental Impact Report.**

This report provides details of the results of the Environmental Impact stage assessment. The findings of the study are based on a desktop assessment of the study area, mapping from aerial imagery and a field site visit.

## METHODOLOGY

The assessment is to be undertaken in two phases, a Scoping phase and an Impact Assessment phase. This report provides an Impact Assessment level description of the site and assessment of the activity.

### Assessment philosophy

Many parts of South Africa contain high levels of biodiversity at species and ecosystem level. At any single site there may be large numbers of species or high ecological complexity. Sites also vary in their natural character and uniqueness and the level to which they have been previously disturbed. Assessing the potential impacts of a proposed development often requires evaluating the conservation value of a site relative to other natural areas and relative to the national importance of the site in terms of biodiversity conservation. A simple approach to evaluating the relative importance of a site includes assessing the following:

- Is the site unique in terms of natural or biodiversity features?
- Is the protection of biodiversity features on the site of national/provincial importance?
- Would development of the site lead to contravention of any international, national or provincial legislation, policy, convention or regulation?

Thus, the general approach adopted for this type of study is to identify any critical biodiversity issues that may lead to the decision that the proposed project cannot take place, i.e. to specifically focus on red flags and/or potential fatal flaws. Biodiversity issues are assessed by documenting whether any important biodiversity features occur on site, including species, ecosystems or processes that maintain ecosystems and/or species. These can be organised in a hierarchical fashion, as follows:

#### Species

1. threatened plant species
2. protected trees
3. threatened animal species

#### Ecosystems

1. threatened ecosystems
2. protected ecosystems
3. critical biodiversity areas
4. areas of high biodiversity
5. centres of endemism

#### Processes

1. corridors
2. mega-conservancy networks
3. rivers and wetlands
4. important topographical features

It is not the intention to provide comprehensive lists of all species that occur on site, since most of the species on these lists are usually common or widespread species. Rare, threatened, protected and conservation-worthy species and habitats are considered to be the highest priority, the presence of which are most likely to result in significant negative impacts on the ecological environment. The focus on national and provincial priorities and critical biodiversity

issues is in line with National legislation protecting environmental and biodiversity resources, including, but not limited to the following which ensure protection of ecological processes, natural systems and natural beauty as well as the preservation of biotic diversity in the natural environment:

1. Environment Conservation Act (Act 73 of 1989)
2. National Environmental Management Act, 1998 (NEMA) (Act 107 of 1998)
3. National Environmental Management Biodiversity Act, 2004. (Act 10 Of 2004)

## **Species of conservation concern**

There are two types of species of concern for the site under investigation, (i) those listed by conservation authorities as being on a Red List and are therefore considered to be at risk of extinction, and (ii) those listed as protected according to National and/or Provincial legislation.

### ***Red List plant species***

Determining the conservation status of a species is required in order to identify those species that are at greatest risk of extinction and, therefore, in most need of conservation action. South Africa has adopted the IUCN Red List Categories and Criteria to provide an objective, rigorous, scientifically founded system to identify Red List species. A published list of the Red List species of South African plants (Raimondo et al. 2009) contains a list of all species that are considered to be at risk of extinction. This list is updated regularly to take new information into account, but these are not published in book/paper format. Updated assessments are provided on the SANBI website (<http://redlist.sanbi.org/>). According to the website of the Red List of Southern African Plants (<http://redlist.sanbi.org/>), *the conservation status of plants indicated on the Red List of South African Plants Online represents the status of the species within South Africa's borders. This means that when a species is not endemic to South Africa, only the portion of the species population occurring within South Africa has been assessed. The global conservation status, which is a result of the assessment of the entire global range of a species, can be found on the International Union for the Conservation of Nature (IUCN) Red List of Threatened Species: <http://www.iucnredlist.org>.* The South African assessment is used in this study.

The purpose of listing Red List species is to provide information on the potential occurrence of species at risk of extinction in the study area that may be affected by the proposed infrastructure. Species appearing on these lists can then be assessed in terms of their habitat requirements in order to determine whether any of them have a likelihood of occurring in habitats that may be affected by the proposed infrastructure.

Lists were compiled specifically for any species at risk of extinction (Red List species) previously recorded in the area. Historical occurrences of threatened plant species were obtained from the South African National Biodiversity Institute (<http://posa.sanbi.org>) for the quarter degree square/s within which the study area is situated. Habitat information for each species was obtained from various published sources. The probability of finding any of these species was then assessed by comparing the habitat requirements with those habitats that were found, during the field survey of the site, to occur there.

### ***Protected trees***

Regulations published for the National Forests Act (Act 84 of 1998) as amended, provide a list of protected tree species for South Africa. The species on this list were assessed in order to determine which protected tree species have a geographical distribution that coincides with the study area and habitat requirements that may be met by available habitat in the study area. The distribution of species on this list was obtained from published sources (e.g. van Wyk & van Wyk 1997) and from the SANBI Biodiversity Information System website

(<http://sibis.sanbi.org/>) for quarter degree grids in which species have been previously recorded. Species that have been recorded anywhere in proximity to the site (within 100 km), or where it is considered possible that they could occur there, were listed and were considered as being at risk of occurring there. The site was searched for these species during the field survey and any individuals or concentrations noted.

### **Other protected species**

National legislation was evaluated in order to provide lists of any plant or animal species that have protected status. The most important legislation is the following:

- **National Environmental Management: Biodiversity Act (Act No 10 of 2004)**

This legislation contains lists of species that are protected. These lists were scanned in order to identify any species that have a geographical range that includes the study area and habitat requirements that are met by those found on site. These species were searched for within suitable habitats on site or, where relevant, it was stated that it was considered possible that they could occur on site.

There is additional legislation that provides lists of protected species, but the legislation to which these are attached deal primarily with harvesting or trade in listed species and do not specifically address transformational threats to habitat or individuals. This includes the following legislation:

- **CITES: Convention on the Trade in Endangered Species of Wild Fauna and Flora.**

### **Red List animal species**

Lists of threatened animal species that have a geographical range that includes the study area were obtained from literature sources (for example, Alexander & Marais 2007, Branch 1988, 2001, du Preez & Carruthers 2009, Friedmann & Daly 2004, Mills & Hes 1997, Monadjem et al. 2010). The likelihood of any of them occurring was evaluated on the basis of habitat preference and habitats available at each of the proposed sites. The three parameters used to assess the probability of occurrence for each species were as follows:

- **Habitat requirements:** most Red Data animals have very specific habitat requirements and the presence of these habitat characteristics within the study area were assessed;
- **Habitat status:** in the event that available habitat is considered suitable for these species, the status or ecological condition was assessed. Often, a high level of degradation of a specific habitat type will negate the potential presence of Red Data species (especially wetland-related habitats where water-quality plays a major role); and
- **Habitat linkage:** movement between areas used for breeding and feeding purposes forms an essential part of ecological existence of many species. The connectivity of the study area to these surrounding habitats and adequacy of these linkages are assessed for the ecological functioning Red Data species within the study area.

### **Species probability of occurrence**

Some species of plants may be cryptic, difficult to find, rare, ephemeral or generally not easy to spot while undertaking a survey of a large area. An assessment of the possibility of these species occurring there was therefore provided. For all threatened or protected flora that occur in the general geographical area of the site, a rating of the likelihood of it occurring on site is given as follows:

- **LOW:** no suitable habitats occur on site / habitats on site do not match habitat description for species;
- **MEDIUM:** habitats on site match general habitat description for species (e.g. karoo shrubland), but detailed microhabitat requirements (e.g. mountain shrubland on shallow soils overlying sandstone) are absent on the site or are unknown from the descriptions given in the literature or from the authorities;

- HIGH: habitats found on site match very strongly the general and microhabitat description for the species (e.g. mountain shrubland on shallow soils overlying sandstone);
- DEFINITE: species found in habitats on site.

## Habitat sensitivity

The purpose of producing a habitat sensitivity map is to provide information on the location of potentially sensitive features in the study area. This was compiled by taking the following into consideration:

1. The general status of the vegetation of the study area was derived by compiling a landcover data layer for the study area (*sensu* Fairbanks et al. 2000) using available satellite imagery and aerial photography. From this it can be seen which areas are transformed versus those that are still in a natural status.
2. Various provincial, regional or national level conservation planning studies have been undertaken in the area, e.g. the National Spatial Biodiversity Assessment (NSBA). The mapped results from these were taken into consideration in compiling the habitat sensitivity map.
3. Habitats in which various species of plants or animals occur that may be protected or are considered to have high conservation status are considered to be sensitive.

An explanation of the different sensitivity classes is given in Table 1. Areas containing untransformed natural vegetation of conservation concern, high diversity or habitat complexity, Red List organisms or systems vital to sustaining ecological functions are considered potentially sensitive. In contrast, any transformed area that has no importance for the functioning of ecosystems is considered to potentially have low sensitivity.

**Table 1: Explanation of sensitivity ratings.**

Sensitivity	Factors contributing to sensitivity	Example of qualifying features
VERY HIGH	<p>Indigenous natural areas that are highly positive for <u>any</u> of the following:</p> <ul style="list-style-type: none"> <li>• presence of threatened species (Critically Endangered, Endangered, Vulnerable) and/or habitat critical for the survival of populations of threatened species.</li> <li>• <u>High</u> conservation status (low proportion remaining intact, highly fragmented, habitat for species that are at risk).</li> <li>• <u>Protected</u> habitats (areas protected according to national / provincial legislation, e.g. National Forests Act, Draft Ecosystem List of NEM:BA, Integrated Coastal Zone Management Act, Mountain Catchment Areas Act, Lake Areas Development Act)</li> </ul> <p>And may also be positive for the following:</p> <ul style="list-style-type: none"> <li>• <u>High</u> intrinsic biodiversity value (<u>high</u> species richness and/or turnover, unique ecosystems)</li> <li>• <u>High</u> value ecological goods &amp; services (e.g. water supply, erosion control, soil formation, carbon storage, pollination,</li> </ul>	<ul style="list-style-type: none"> <li>• CBA 1 areas.</li> <li>• Remaining areas of vegetation type listed in Draft Ecosystem List of NEM:BA as Critically Endangered, Endangered or Vulnerable.</li> <li>• Protected forest patches.</li> <li>• Confirmed presence of populations of threatened species.</li> </ul>

Sensitivity	Factors contributing to sensitivity	Example of qualifying features
	refugia, food production, raw materials, genetic resources, cultural value) <ul style="list-style-type: none"> <li>• <u>Low</u> ability to respond to disturbance (low resilience, dominant species very old).</li> </ul>	
HIGH	Indigenous natural areas that are positive for any of the following: <ul style="list-style-type: none"> <li>• <u>High</u> intrinsic biodiversity value (<u>moderate/high</u> species richness and/or turnover).</li> <li>• presence of habitat highly suitable for threatened species (Critically Endangered, Endangered, Vulnerable species).</li> <li>• <u>Moderate</u> ability to respond to disturbance (<u>moderate</u> resilience, dominant species of intermediate age).</li> <li>• <u>Moderate</u> conservation status (moderate proportion remaining intact, moderately fragmented, habitat for species that are at risk).</li> <li>• <u>Moderate to high</u> value ecological goods &amp; services (e.g. water supply, erosion control, soil formation, carbon storage, pollination, refugia, food production, raw materials, genetic resources, cultural value).</li> </ul> And may also be positive for the following: <ul style="list-style-type: none"> <li>• <u>Protected</u> habitats (areas protected according to national / provincial legislation, e.g. National Forests Act, Draft Ecosystem List of NEM: BA, Integrated Coastal Zone Management Act, Mountain Catchment Areas Act, Lake Areas Development Act)</li> </ul>	<ul style="list-style-type: none"> <li>• <b>CBA 2 “critical biodiversity areas”</b>.</li> <li>• Habitat where a threatened species could potentially occur (habitat is suitable, but no confirmed records).</li> <li>• Confirmed habitat for species of lower threat status (near threatened, rare).</li> <li>• Habitat containing individuals of extreme age.</li> <li>• Habitat with low ability to recover from disturbance.</li> <li>• Habitat with exceptionally high diversity (richness or turnover).</li> <li>• Habitat with unique species composition and narrow distribution.</li> <li>• Ecosystem providing high value ecosystem goods and services.</li> </ul>
MEDIUM-HIGH	Indigenous natural areas that are positive for <u>one</u> or <u>two</u> of the factors listed above, but not a combination of factors.	<ul style="list-style-type: none"> <li>• <b>CBA 2 “corridor areas”</b>.</li> <li>• Habitat with high diversity (richness or turnover).</li> <li>• Habitat where a species of lower threat status (e.g. (near threatened, rare) could potentially occur (habitat is suitable, but no confirmed records).</li> </ul>
MEDIUM	Other indigenous natural areas in which factors listed above are of no particular concern. May also include natural buffers around ecologically sensitive areas and natural links or corridors in which natural habitat is still ecologically functional.	

<b>Sensitivity</b>	<b>Factors contributing to sensitivity</b>	<b>Example of qualifying features</b>
MEDIUM-LOW	Degraded or disturbed indigenous natural vegetation.	
LOW	No natural habitat remaining.	

Any natural vegetation within which there are features of conservation concern will be classified into one of the high sensitivity classes (MEDIUM-HIGH, HIGH or VERY HIGH. The difference between these three high classes is based on a combination of factors and can be summarised as follows:

1. Areas classified into the VERY HIGH class are vital for the survival of species or ecosystems. They are either known sites for threatened species or are ecosystems that have been identified as being remaining areas of vegetation of critical conservation importance. CBA1 areas would qualify for inclusion into this class.
2. Areas classified into the HIGH class are of high biodiversity value, but do not necessarily contain features that would put them into the VERY HIGH class. For example, a site that is known to contain a population of a threatened species would be in the VERY HIGH class, but a site where a threatened species could potentially occur (habitat is suitable), but it is not known whether it does occur there or not, is classified into the HIGH sensitivity class. The class also includes any areas that are not specifically identified as having high conservation status, but have high local species richness, unique species composition, low resilience or provide very important ecosystem goods and services. **CBA2 "irreplaceable biodiversity areas" would qualify for inclusion into this class, if there were no other factors that would put them into the highest class.**
3. Areas classified into the MEDIUM-HIGH sensitivity class are natural vegetation in which there are one or two features that make them of biodiversity value, but not to the extent that they would be classified into one of the other two higher categories. **CBA2 "corridor areas" would qualify for inclusion into this class.**

### **Limitations and exclusions**

- Red List species are, by their nature, usually very rare and difficult to locate. Compiling the list of species that could potentially occur in an area is limited by the paucity of collection records that make it difficult to predict whether a species may occur in an area or not. The methodology used in this assessment is designed to reduce the risks of omitting any species, but it is always possible that a species that does not occur on a list may be unexpectedly located in an area.
- This study excludes invertebrates.

### **Impact assessment methodology**

The Impact Assessment Methodology assists in evaluating the overall effect of a proposed activity on the environment. The determination of the effect of an environmental impact on an environmental parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available to the environmental practitioner through the process of the environmental impact assessment. The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts.



**Determination of Significance of Impacts**

Significance is determined through a synthesis of impact characteristics which include context and intensity of an impact. Context refers to the geographical scale i.e. site, local, national or global whereas Intensity is defined by the severity of the impact e.g. the magnitude of deviation from background conditions, the size of the area affected, the duration of the impact and the overall probability of occurrence. Significance is calculated as shown in Table 2.

Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

**Impact Rating System**

Impact assessment must take account of the nature, scale and duration of effects on the environment whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the project stages:

- planning
- construction
- operation
- decommissioning

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed.

The rating system is applied to the potential impact on the receiving environment and includes an objective evaluation of the mitigation of the impact. Impacts have been consolidated into one rating. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

**Table 1: Description of terms**

<b>NATURE</b>		
A brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity.		
<b>GEOGRAPHICAL EXTENT</b>		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
<b>PROBABILITY</b>		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
<b>REVERSIBILITY</b>		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		

1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
<b>IRREPLACEABLE LOSS OF RESOURCES</b>		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
<b>DURATION</b>		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 - 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 - 2 years).
2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 - 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10 - 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
<b>CUMULATIVE EFFECT</b>		
This describes the cumulative effect of the impacts on the environmental parameter. A cumulative effect/impact is an effect which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from other similar or diverse activities as a result of the project activity in question.		
1	Negligible Cumulative Impact	The impact would result in negligible to no cumulative effects
2	Low Cumulative Impact	The impact would result in insignificant cumulative effects
3	Medium Cumulative Impact	The impact would result in minor cumulative effects
4	High Cumulative Impact	The impact would result in significant cumulative effects
<b>INTENSITY / MAGNITUDE</b>		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).

3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.

**SIGNIFICANCE**

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula:

**(Extent + probability + reversibility + irreplaceability + duration + cumulative effect) x magnitude/intensity.**

The summation of the different criteria will produce a non weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.

6 to 28	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
6 to 28	Positive Low impact	The anticipated impact will have minor positive effects.
29 to 50	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
29 to 50	Positive Medium impact	The anticipated impact will have moderate positive effects.
51 to 73	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.
51 to 73	Positive High impact	The anticipated impact will have significant positive effects.
74 to 96	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
74 to 96	Positive Very high impact	The anticipated impact will have highly significant positive effects.

**Table 2: Impact table format**

<b>IMPACT TABLE FORMAT</b>	
<i>Environmental parameter</i>	<i>A brief description of the environmental aspect likely to be affected by the proposed activity e.g. Surface water</i>
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>A brief description of the nature of the impact that is likely to affect the environmental aspect as a result of the proposed activity e.g. alteration of aquatic biota The environmental impact that is likely to positively or negatively affect the environment as a result of the proposed activity e.g. oil spill in surface water</i>

<i>Extent</i>		
<i>Probability</i>	<i>A brief description indicating the chances of the impact occurring</i>	
<i>Reversibility</i>	<i>A brief description of the ability of the environmental components recovery after a disturbance as a result of the proposed activity</i>	
<i>Irreplaceable loss of resources</i>	<i>A brief description of the degree in which irreplaceable resources are likely to be lost</i>	
<i>Duration</i>	<i>A brief description of the amount of time the proposed activity is likely to take to its completion</i>	
<i>Cumulative effect</i>	<i>A brief description of whether the impact will be exacerbated as a result of the proposed activity</i>	
<i>Intensity/magnitude</i>	<i>A brief description of whether the impact has the ability to alter the functionality or quality of a system permanently or temporarily</i>	
<i>Significance rating</i>	<i>A brief description of the importance of an impact which in turn dictates the level of mitigation required</i>	
	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	4	1
Probability	4	1
Reversibility	4	1
Irreplaceable loss	4	1
Duration	4	1
Cumulative effect	4	1
Intensity/magnitude	4	1
Significance rating	-96 (high negative)	-6 (low negative)
Mitigation measures	<i>Outline/explain the mitigation measures to be undertaken to ameliorate the impacts that are likely to arise from the proposed activity. Describe how the mitigation measures have reduced/enhanced the impact with relevance to the impact criteria used in analyzing the significance. These measures will be detailed in the EMPR.</i>	

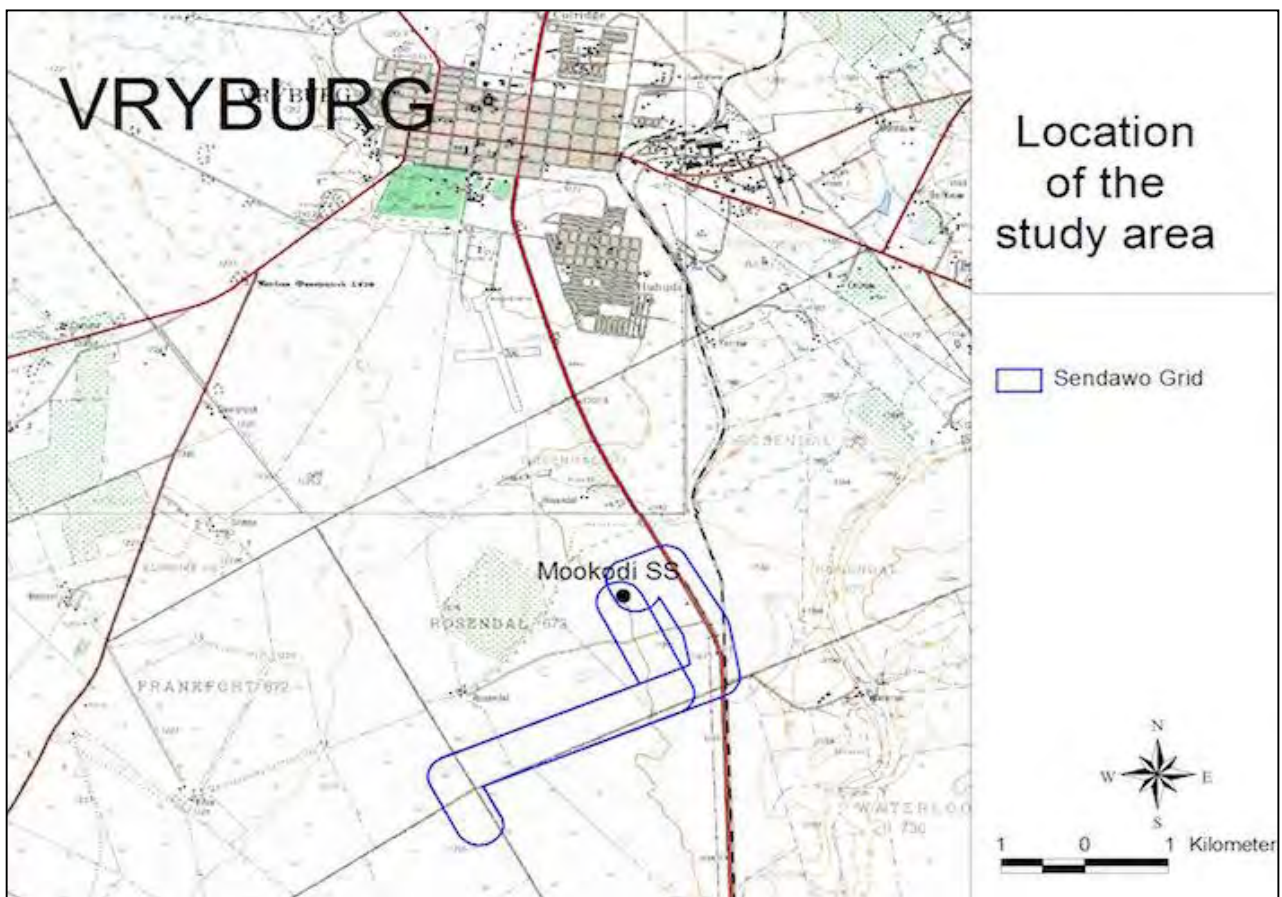
## DESCRIPTION OF STUDY AREA

### Location

The study site is situated approximately 10 km south of Vryburg in the Dr Ruth Segomotsi Mompati District of the North West Province (Figure 1). The site falls within the quarter degree grid 2724BA and BB. The project affects portions of the following farms:

- Portion 1 of the farm Edinburgh No. 735
- Remainder of Portion 1 of the Farm Frankfort No. 672
- Remainder of the Farm Rosendal No. 673
- Portion 1 of the Farm Rosendal No. 673
- Portion 2 of the Farm Rosendal No. 673
- Remainder of Portion 3 of the Farm Waterloo No. 730
- Portion 4 of the Farm Waterloo No. 730

The project site near Vryburg has been identified through pre-feasibility studies conducted by BioTherm based on an estimation of the solar energy resource as well as weather, dust, dirt, and surface albedo. Grid connection and land availability were also important initial considerations. There is one proposed location for the on-site substation, Substation Alternative 2, with two possible power line corridors. The proposed location of these infrastructure alternatives are shown in Figure 1.



**Figure 1: Location of the power line infrastructure alternatives in the study area.**

## Topography

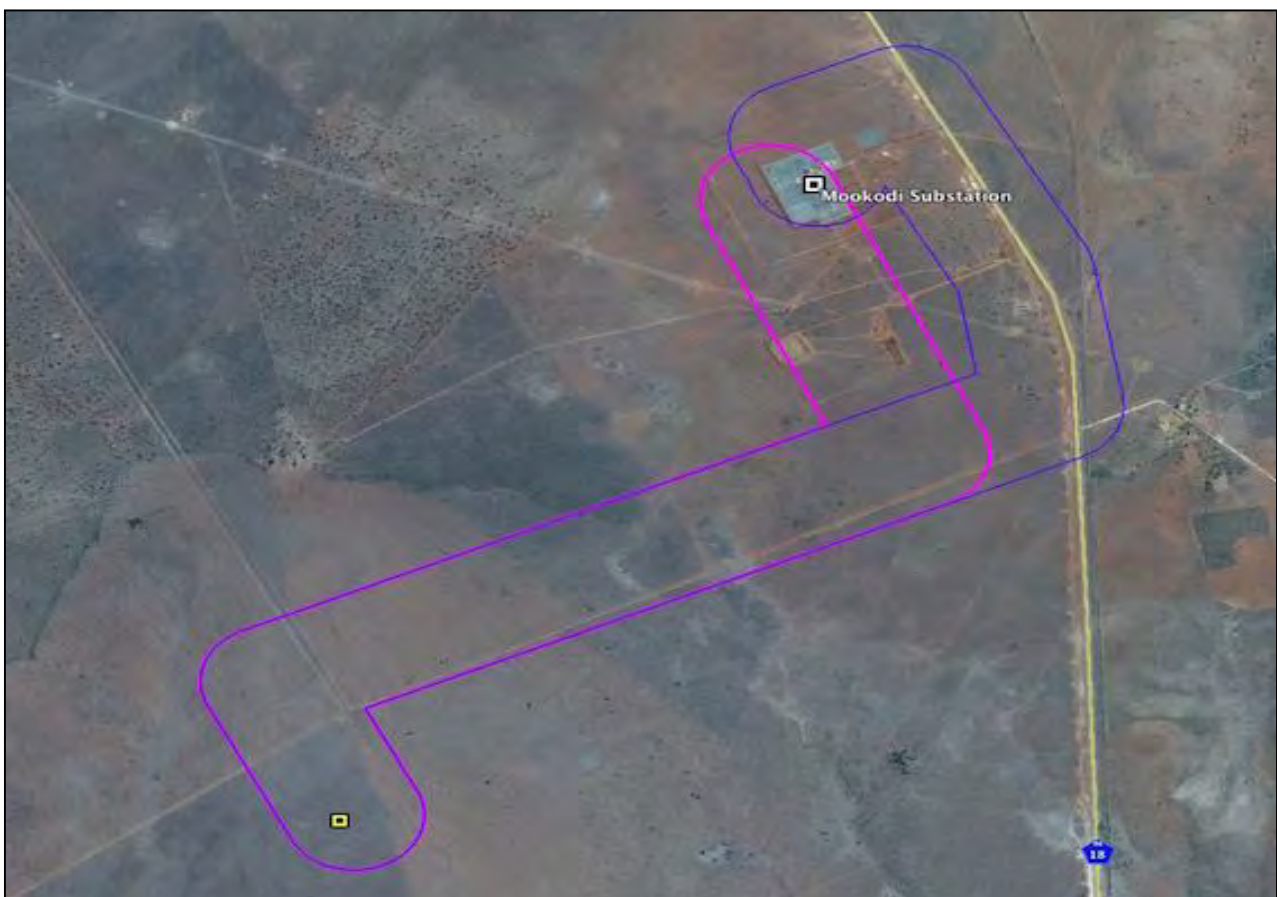
The study site is situated in a relatively flat landscape. There is a slight fall-off to the east. The elevation varies from approximately 1180 m above sea level to 1215 m above sea level, a height gain of 35 m over a distance of 4.8 km, a gradient of approximately 1:130.

There are no watercourses directly within the footprint of the proposed infrastructure, but there is a non-perennial stream just to the east of the study area.

## Land types and soils

Detailed soil information is not available for broad areas of the country. As a surrogate, landtype data was used to provide a general description of soils in the study area (landtypes are areas with largely uniform soils, topography and climate). There are two land types in the study area, the Ae and Ag landtypes (Land Type Survey Staff, 1987).

The A-group of land types refer to yellow and red soils without water tables belonging to one or more of the following soil forms: Inanda, Kranskop, Magwa, Hutton, Griffin, Clovelly. The Ae landtype consists of red, high base status soils, > 300 mm deep with no dunes (MacVicar et al. 1974) and the Ag landtype consists of red, high base status soils, < 300 mm deep with no dunes. The soils on site are therefore expected to not be too shallow and probably reasonably fertile.



**Figure 2: Aerial image of the study area.**

## Climate

The climate is semi-arid. Rainfall occurs in summer and autumn with very dry winters. Mean annual rainfall is about 500 mm per year. All areas with less than 400 mm rainfall are considered to be arid. The study area can therefore be considered to be dry / semi-arid. Frost is frequent to very frequent in winter and summer temperatures can get hot with a mean monthly maximum temperature of over 36°C in January.

## Landuse and landcover of the study area

A landcover map of the study area (Fairbanks *et al.* 2000) indicates that the study consists of natural vegetation, **classified as "thicket and bushland" with some areas of "degraded thicket and bushland"**. The 1:50 000 topocadastral map of the site and a Google image of the site (Figure 2) show a slightly different pattern, with the most obvious feature being the main road traversing the area from north to south. There is a settlement in the south-eastern part of the study area, called Tierkloof. There is also an existing substation in the north-eastern part of the study area, the Mookodi Substation, which consists of the substation itself as well as some degraded areas around it.

## Broad vegetation types of the region

The sites fall within the Savanna Biome (Rutherford & Westfall 1986, Mucina & Rutherford 2006). The most recent and detailed description of the vegetation of this region is part of a national map (Mucina, Rutherford & Powrie, 2005; Mucina *et al.* 2006). This map shows one vegetation type occurring within the area of interest, Ghaap Plateau Vaalbosveld. This vegetation type is described in more detail below.

### **Ghaap Plateau Vaalbosveld**

This vegetation type occurs in the Northern Cape Province and the North West Province on the flat plateau from around Campbell in the south to around Vryburg in the north (Mucina *et al.* 2006). The vegetation consists of a well-developed shrub layer with *Tarchonanthus camphoratus* and *Acacia karroo* and an open tree layer with *Olea europea* subsp. *africana*, *Acacia tortilis*, *Ziziphus mucronata* and *Rhus lancea*. The vegetation has a relatively low cover of *Acacia* for an arid savannah and is mostly dominated by non-thorny species, such as *Olea europea* subsp. *africana*, *Rhus lancea* and *Tarchonanthus camphoratus*. The thorny species, *Acacia tortilis*, *Acacia hebeclada* and *Acacia mellifera* are more important in the northern parts of the vegetation type around Vryburg. This vegetation unit contains a high number of Griqualand West and Kalahari endemics.

## Conservation status of broad vegetation types

On the basis of a recently established approach used at national level by SANBI (Driver *et al.* 2005), vegetation types can be categorised according to their conservation status which is, in turn, assessed according to the degree of transformation relative to the expected extent of each vegetation type. The status of a habitat or vegetation type is based on how much of its original area still remains intact relative to various thresholds. The original extent of a vegetation type is as presented in the most recent national vegetation map (Mucina, Rutherford & Powrie 2005) and is the extent of the vegetation type in the absence of any historical human impact. On a national scale the thresholds are as depicted in Table 1, as determined by best available scientific approaches (Driver *et al.* 2005).

The level at which an ecosystem becomes Critically Endangered differs from one ecosystem to another and varies from 16% to 36% (Driver et al. 2005).

The vegetation type occurring in the study area (Table 2) is classified as Least Threatened (Driver *et al.* 2005; Mucina *et al.*, 2006). None of the vegetation is therefore flagged as being of conservation concern.

**Table 1: Determining ecosystem status (from Driver et al. 2005).** \*BT = biodiversity target (the minimum conservation requirement).

Habitat remainin g (%)	80-100	least threatened	LT
	60-80	vulnerable	VU
	*BT-60	endangered	EN
	0-*BT	critically endangered	CR

**Table 2: Conservation status of different vegetation types occurring in the study area, according to Driver et al. 2005 and Mucina et al. 2005.**

Vegetation Type	Target (%)	Conserved (%)	Transformed (%)	Conservation status	
				Driver et al. 2005; Mucina et al., 2006	Draft Ecosystem List (NEMBA)
Ghaap Plateau Vaalbosveld	16	0	1	Least Threatened	Not listed

### Biodiversity Conservation Plans

The North-West Province Biodiversity Conservation Assessment (obtained from bgis.sanbi.org) provides maps that show Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), corridors and hills (see Figure 3 on next page). This shows a variety of features within the study area, including the following:

1. Wetland CBAs: a number of small pans in the area considered to be irreplaceable wetlands. None of these are directly affected by the proposed infrastructure, although there are a number of these to the south of the area through which the proposed infrastructure will travel.
2. Wetland ESAs: buffer areas of terrestrial habitat adjacent to wetlands that are important ecological support areas for the aquatic systems (500 m wide). Some of these buffer areas fall slightly within the proposed corridor options. This overlap is, however, very small and only on the very edges.
3. CBA corridors: Provincial-level biodiversity corridor network aimed at retaining connectivity between geographical areas. The eastern half of the study area falls within this biodiversity corridor area, including portions of both the power line corridor alternatives.
4. ESA dolomites: Areas of dolomite and their associated aquifers, important as groundwater recharge areas. Most of the south-western half of the study area falls within this category, including the proposed on-site substation.



### Proposed protected areas

According to the National Parks Area Expansion Strategy (NPAES), there is an area 20 km to the north-west of the project study area that has been identified as priority areas for inclusion in future protected areas. This particular component of the landscape is considered to be of high biodiversity value by National Parks, but the proposed project does not affect this area at all.

### Red List plant species of the study area

Lists of plant species of conservation concern previously recorded in the quarter degree grids in which the study area is situated were obtained from the South African National Biodiversity Institute. These are listed in Appendix 1. Additional species that could occur in similar habitats, as determined from database searches and literature sources, but have not been recorded in these grids are also listed.

There are two species that may occur in the study area, the succulent, *Lithops lesliei* subsp. *lesliei*, listed as Near Threatened, and the herb, *Rennera stellata*, listed as Vulnerable (see Table 3 for explanation of categories), although neither was found on site. *Rennera stellata* is found in seasonally waterlogged pans and on unweathered calcrete rocks, in full sun. The species has been recorded in two neighbouring grids in the type of habitat that is found on site and the possibility of it occurring in the study area is therefore considered to be high. *Lithops lesliei* subsp. *lesliei* is found in arid grasslands, usually in rocky places, growing under the protection of forbs and grasses. It is possible that it could also occur on site.

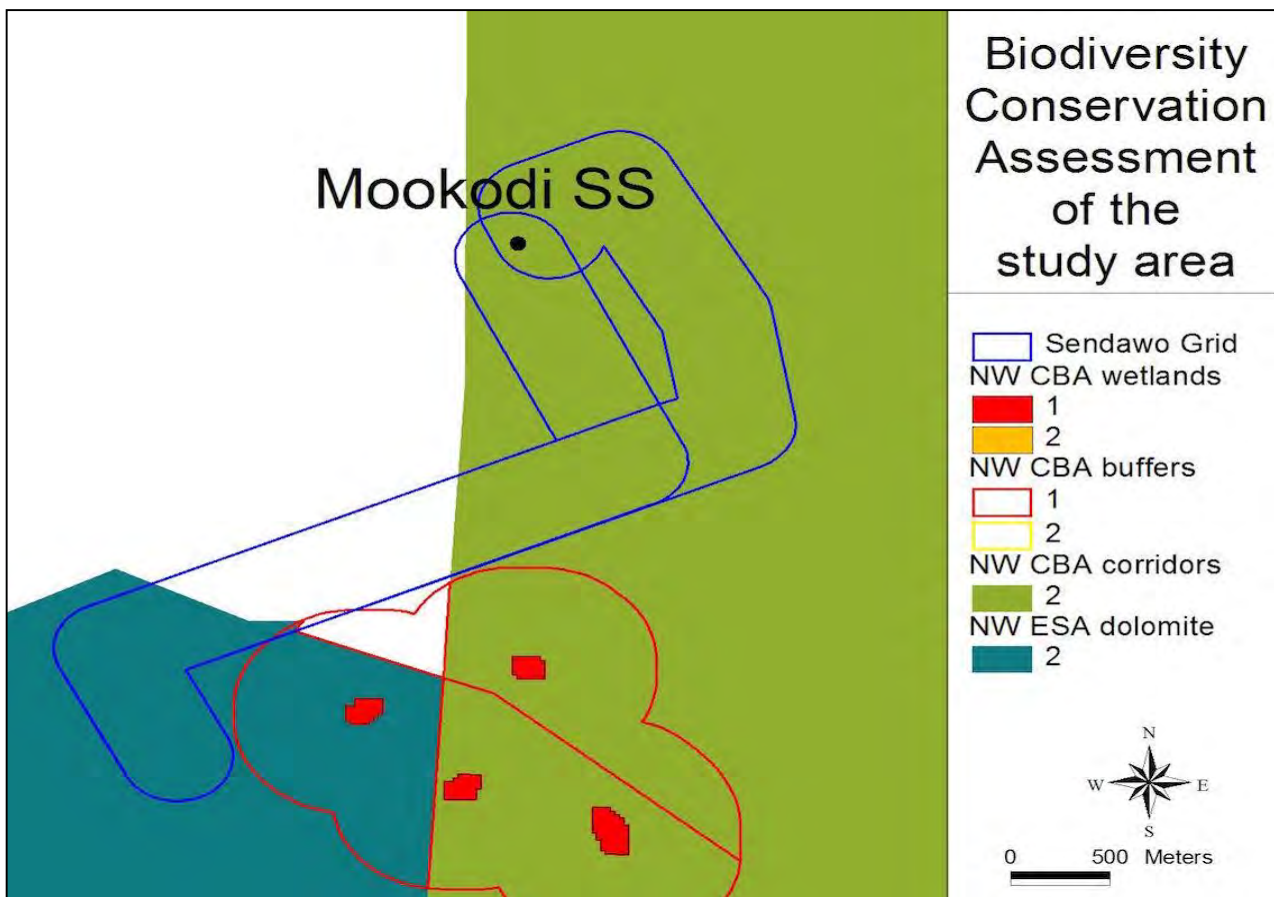


Figure 3: Biodiversity Conservation Assessment for the study area.

**Table 3: Explanation of IUCN Ver. 3.1 categories (IUCN, 2001), and Orange List categories (Victor & Keith, 2004).**

IUCN / Orange List category	Definition	Class
EX	Extinct	Extinct
CR	Critically Endangered	Red List
EN	Endangered	Red List
VU	Vulnerable	Red List
NT	Near Threatened	Orange List
Declining	Declining taxa	Orange List
Rare	Rare	Orange List
Critically Rare	Rare: only one subpopulation	Orange List
Rare-Sparse	Rare: widely distributed but rare	Orange List
DDD	Data Deficient: well known but not enough information for assessment	Orange List
DDT	Data Deficient: taxonomic problems	Data Deficient
DDX	Data Deficient: unknown species	Data Deficient

### Red List animal species of the study area

All Red List vertebrates (mammals, birds, reptiles, amphibians) that could occur in the study area are listed in Appendix 3.

There are 77 mammal species that have a geographical distribution that includes the study area, of which nine are listed in a conservation category of some level (see Appendix 3). Of the listed species, there are three of low conservation concern that could occur in available habitats in the study area (see Appendix 4 for habitat requirements of listed species). These are the Brown Hyaena, the Honey Badger and Southern African Hedgehog. All of these species are classified nationally as near threatened (NT), but globally as Least Concern. They are, therefore, of relatively low conservation concern in comparison to more threatened species found in other parts of the country. The Honey Badger and the Hedgehog are protected under the National Environmental Management: Biodiversity Act and any impacts on a specimen of this species or that may negatively affect the survival of the species would require a permit.

There are a total of 12 frog species with a geographical distribution that includes the study area (see Appendix 3). The Giant Bullfrog is the only amphibian species with a distribution that includes the study area and which could occur on site. This species is listed as Least Concern globally and Near threatened in South Africa. It is, however, protected under the National Environmental Management: Biodiversity Act and any impacts on a specimen of this species or that may negatively affect the survival of the species would require a permit.

There are a total of 48 reptile species with a geographical distribution that includes the study area. There is one reptile species of conservation concern that has a distribution that includes the study area, the Southern African Python. This species is not listed in a threat category, but is protected under the National Environmental Management: Biodiversity Act.

There are a total of 287 bird species that have a geographical distribution that includes the study area, of which 22 species are listed in a conservation category. Many of these listed bird species could potentially occur on site, because they have wide ranges and forage over wide areas. However, few of these species are likely to breed on site and none of them are likely to be dependent on the site relative to surrounding areas. The Kori Bustard and Secretarybird are the species probably most likely to be found on the site itself, but any of the others could potentially be seen there.

## **Protected plants (National Environmental Management: Biodiversity Act)**

Plant species protected under the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) are listed in Appendix 5. One plant species that appears on this list that could potentially occur in the general region, although they have not previously been recorded in the grids of the study area, is *Harpagophytum procumbens*.

*Harpagophytum procumbens* occurs in Angola, Botswana, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe. Within South Africa this species occurs in the Northern Cape, North West, Free State, and Limpopo Provinces and the largest populations are found in the communally owned areas of the North West Province and the north eastern parts of the Northern Cape. The species is found in well drained sandy habitats in open savanna and woodlands. It has not been previously recorded in this grid, but has been recorded in the grids to the south and north. It is considered possible, but unlikely that this species could occur on site due to habitat conditions found there relative to the species requirements.

## **Protected trees**

Tree species protected under the National Forest Act are listed in Appendix 2. The only two that have a geographical distribution that includes the study sites are *Acacia erioloba* and *Boscia albitrunca* (Shepherd's Tree / Witgatboom / !Xhi). Neither species was found within the proposed corridors or substation site, but there is still a possibility that small specimens were overlooked.

*Acacia erioloba* (Camelthorn / Kameeldoring) is found in savanna, semi-desert and desert areas with deep, sandy soils and along drainage lines in very arid areas, sometimes in rocky outcrops. This species has a high probability of occurring on site in areas affected by the proposed infrastructure. Soem individuals have been recorded in close proximity to the proposed infrastructure.

*Boscia albitrunca* (Shepherd's Tree / Witgatboom / !Xhi) occurs in semi-desert areas and bushveld, often on termitaria, but is common on sandy to loamy soils and calcrete soils. This species could potentially occur on site in areas affected by the proposed infrastructure, although it was not recorded anywhere nearby.

## **Protected animals**

There are a number of animal species protected according to the National Environmental Management: Biodiversity Act (Act No. 10 of 2004). According to this Act, "a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7". Such activities include any that are "of a nature that may negatively impact on the survival of a listed threatened or protected species". This implies that any negative impacts on habitats in which populations of protected species occur or are dependent upon would be restricted according to this Act.

Those species protected according to the National Environmental Management: Biodiversity Act (Act No. 10 of 2004) that have a geographical distribution that includes the site are listed in **Appendix 6, marked with the letter "N"**. This includes the following species: Roan Antelope, Cape Clawless Otter, Brown Hyaena, Spotted-necked Otter, Honey Badger, Leopard, Cape Fox, Southern African Hedgehog, Southern African Python, Giant Bullfrog, Kori Bustard, Blue Crane,

Martial Eagle, Lesser Kestrel, Black Stork, Cape Vulture, Lappet-faced Vulture and White-backed Vulture.

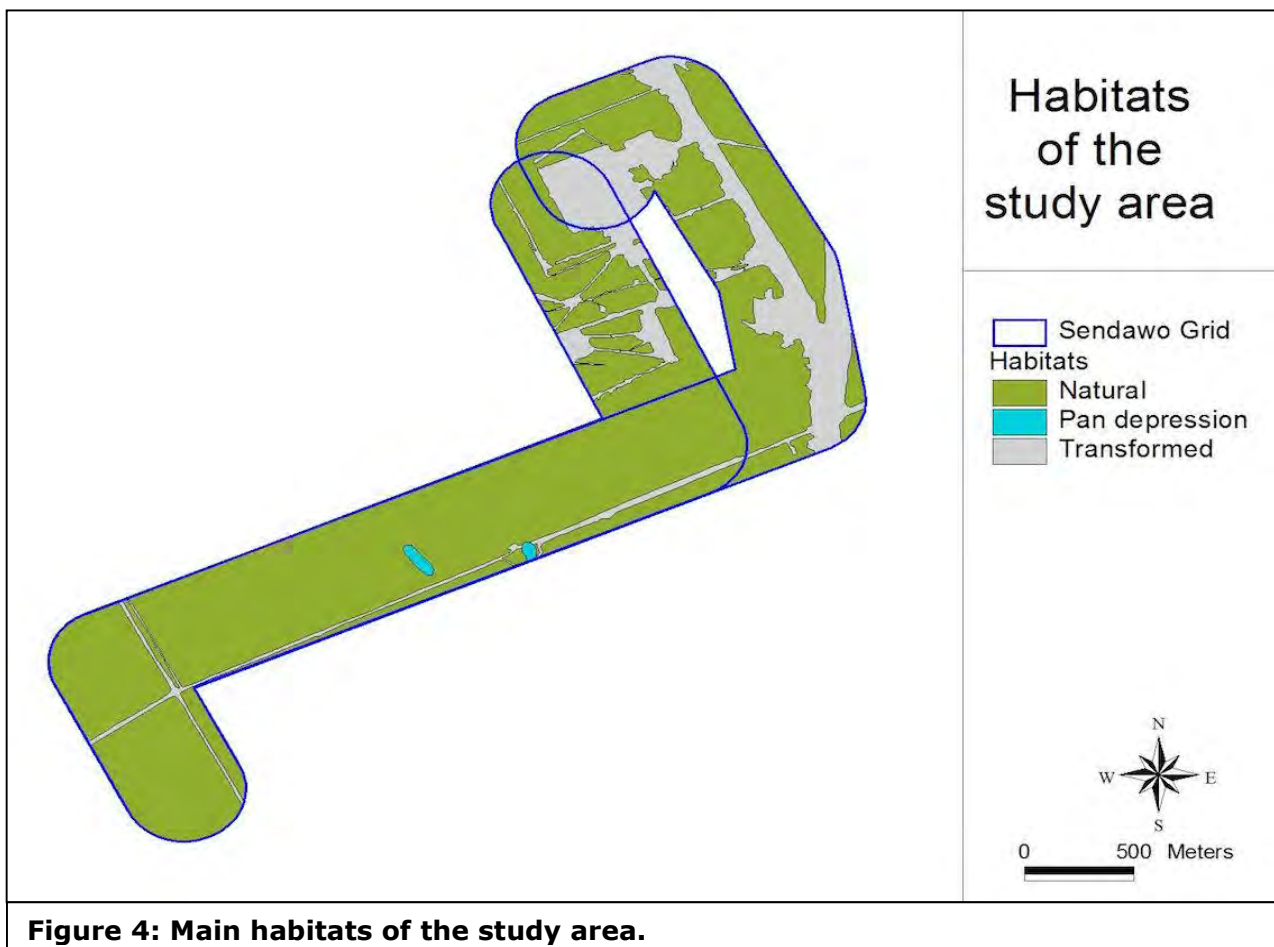
Due to habitat and forage requirements and the fact that some species are restricted to game farms and/or conservation areas, only the Brown Hyaena, Black-footed Cat, Honey Badger, Leopard, Cape Fox, Giant Bullfrog and some of the birds (Kori Bustard, Blue Crane, Martial Eagle, Lesser Kestrel and Black Stork) have a likelihood of occurring on site. All of these species are mobile animals that are likely to move away in the event of any activities on site disturbing them. They are therefore unlikely to be affected by the proposed development of the solar power facility and associated infrastructure.

### Important Bird Areas

The study area is not within an Important Bird Area (IBA). The nearest IBAs are the Spitskop Dam IBA, which is 100 km away to the south, and the Barberspan & Leeupan IBA, which is 100 km away to the east / north-east.

### Habitats on site

Aerial imagery indicates that most of the site consists of natural vegetation (shrubland called Ghaap Plateaux Vaalbosveld). There are two pan depressions on site. The main road, in combination with the settlement of Tierkloof and the Mookodi Substation complex, form an area



**Figure 4: Main habitats of the study area.**

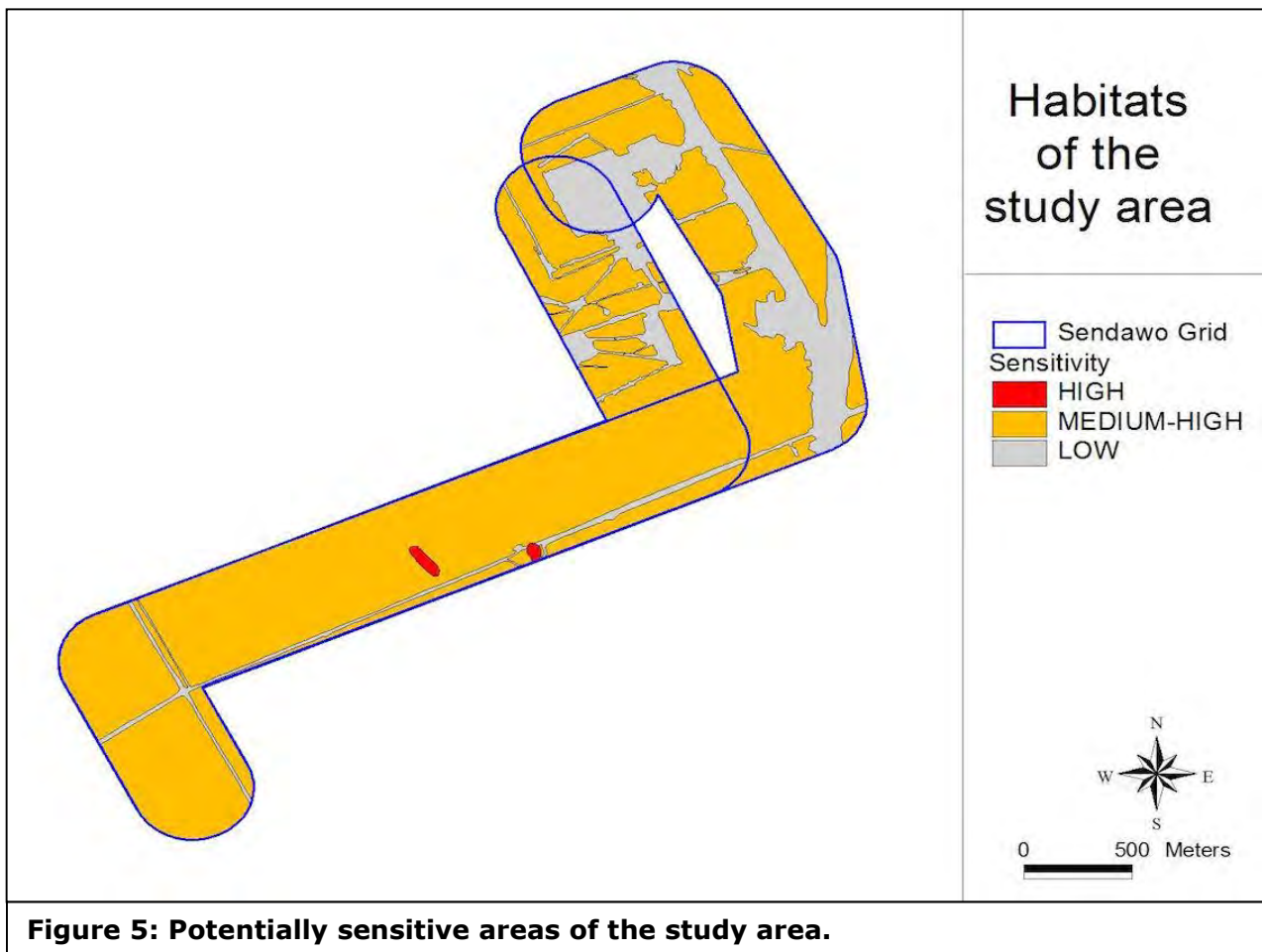
of transformation that runs up the eastern side of the study area. The distribution of main habitats on site, as identifiable from aerial imagery, is shown in Figure 4.

### Watercourses

The study area contains no large watercourses, but there are three small drainage lines that are visible from aerial imagery on the eastern side of the main road outside the immediate study area. These all appear to be dry watercourses containing no wetland habitats.

### Sensitivity assessment

The sensitivity assessment identifies those parts of the study area that have high conservation value or that may be sensitive to disturbance. Areas of potentially high sensitivity are shown in Figure 5. The information provided in the preceding sections was used to compile a map of remaining natural habitats and areas important for maintaining ecological processes in the study area. The only feature of potential concern that needs to be taken into account in order to evaluate sensitivity in the study area is the presence of numerous small pan-like depressions and a small number of non-perennial watercourses. These represent ecological processes, including groundwater dynamics, hydrological processes, nutrient cycling and wildlife dispersal;



**Figure 5: Potentially sensitive areas of the study area.**

These factors have been taken into account in evaluating sensitivity within the study area. Pan depressions are considered to be the most sensitive features on site. The sensitivity classification is as follows:

1. HIGH: All of the watercourses, pans and drainage areas on site are classified as having high sensitivity (see Figure 5). They are protected according to the National Water Act (Act 36 of 1998) and also fall within defined CBA areas. Ecologically, they are areas that provide moderate value ecosystem goods and services.
2. MEDIUM-HIGH: The majority of the study area is classified as having medium-high sensitivity (see Figure 5). These are areas of natural vegetation which fall within CBA corridor and dolomite zones and contain habitat that is potentially suitable for various animal and plant species of conservation concern.
3. LOW: Transformed areas are classified as having low sensitivity (see Figure 5). These are areas in which no intact natural habitat still remains.

## RELEVANT LEGISLATIVE AND PERMIT REQUIREMENTS

Relevant legislation is provided in this section to provide a description of the key legal considerations of importance to the proposed project. The applicable legislation is listed below.

### Legislation

#### ***National Environmental Management Act, Act No. 107 of 1998 (NEMA)***

NEMA requires, inter alia, that:

- “development must be socially, environmentally, and economically sustainable”,
- “disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied.” ,
- “a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions”,

NEMA states that “the environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people’s common heritage.”

#### ***Environment Conservation Act No 73 of 1989 Amendment Notice No R1183 of 1997***

The ECA states that:

Development must be environmentally, socially and economically sustainable. Sustainable development requires the consideration of inter alia the following factors:

- that pollution and degradation of the environment is avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;
- that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised; and
- that negative impacts on the environment and on peoples’ environmental rights be anticipated and prevented, and where they cannot be altogether prevented are minimised and remedied.

The developer is required to undertake Environmental Impact Assessments (EIA) for all projects listed as a Schedule 1 activity in the EIA regulations in order to control activities which might have a detrimental effect on the environment. Such activities will only be permitted with written authorisation from a competent authority.

#### ***National Forests Act (Act no 84 of 1998)***

Protected trees

According to this act, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. The prohibitions provide that ‘no person may cut, damage, disturb, destroy or remove any *protected tree*, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister’.

Forests

Prohibits the destruction of indigenous trees in any natural forest without a licence.

#### ***National Environmental Management: Biodiversity Act (Act No 10 of 2004)***

In terms of the Biodiversity Act, the developer has a responsibility for:

- The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).
- Promote the application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all development within the area are in line with ecological sustainable development and protection of biodiversity.
- Limit further loss of biodiversity and conserve endangered ecosystems.

Chapter 4 of the Act relates to threatened or protected ecosystems or species. According to Section 57 of the Act, "Restricted activities involving listed threatened or protected species":

- (1) A person may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit issued in terms of Chapter 7.

Such activities include any that are "of a nature that may negatively impact on the survival of a listed threatened or protected species".

Chapter 5 of the Act relates to species and organisms posing a potential threat to biodiversity. According to Section 75 of the Act, "Control and eradication of listed invasive species":

- (1) Control and eradication of a listed invasive species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs.
- (2) Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.
- (3) The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

### ***Government Notice No. 1002 of 2011: National List of Ecosystems that are Threatened and in need of protection***

Published under Section 52(1)(a) of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004). This Act provides for the listing of threatened or protected ecosystems based on national criteria. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (2004).

The Environmental Impact Assessment (EIA) Regulations include three lists of activities that require environmental authorisation:

- Listing Notice 1: activities that require a basic assessment (R544 of 2010),
- Listing Notice 2: activities that require seeing and environmental impact report (EIR) (R545 of 2010),
- Listing Notice 3: activities that require a basic assessment in specific identified geographical areas only (R546 of 2010).

Activity 12 in Listing Notice 3 relates to the clearance of 300m<sup>2</sup> of more of vegetation, which will trigger a basic assessment within any critically endangered or endangered ecosystem listed in terms of S52 of the Biodiversity Act. This means any development that involves loss of natural habitat in a listed critically endangered or endangered ecosystem is likely to require at least a basic assessment in terms of the EIA regulations.

It is important to note that while the original extent of each listed ecosystem has been mapped, a basic assessment report in terms of the EIA regulations is triggered only in remaining natural habitat within each ecosystem and not in portions of the ecosystem where natural habitat has already been irreversibly lost.

### ***GNR 151: Critically Endangered, Endangered, Vulnerable and Protected Species List***

Published under Section 56(1) of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004).



### ***GNR 1187: Amendment of Critically Endangered, Endangered, Vulnerable and Protected Species List***

Published under Section 56(1) of the National Environmental Management: Biodiversity Act (Act No. 10 of 2004).

### ***Conservation of Agricultural Resources (Act No. 43 of 1983) as amended in 2001***

Declared Weeds and Invaders in South Africa are categorised according to one of the following categories:

- **Category 1 plants:** are prohibited and must be controlled.
- **Category 2 plants:** (commercially used plants) may be grown in demarcated areas providing that there is a permit and that steps are taken to prevent their spread.
- **Category 3 plants:** (ornamentally used plants) may no longer be planted; existing plants may remain, as long as all reasonable steps are taken to prevent the spreading thereof, except within the floodline of watercourses and wetlands.

### ***National Water Act (Act 36 of 1998)***

Wetlands, riparian zones and watercourses are defined in the Water Act as a water resource and any activities that are contemplated that could affect the wetlands requires authorisation (Section 21 of the National Water Act of 1998). A "watercourse" in terms of the National Water Act (Act 36 of 1998) means:

- River or spring;
- A natural channel in which water flows regularly or intermittently;
- A wetland, lake or dam into which, or from which, water flows; and

Any collection of water which the Minister may, by notice in the gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

### ***National Veld and Forest Fire Act (Act No. 101 of 1998)***

Provides requirements for veldfire prevention through firebreaks and required measures for fire-fighting. Chapter 4 of the Act places a duty on landowners to prepare and maintain firebreaks. Chapter 5 of the Act places a duty on all landowners to acquire equipment and have available personnel to fight fires.

### ***Other Acts***

Other Acts that may apply to biodiversity issues, but which are considered to not apply to the current site are as follows:

- National Environmental Management Protected Areas Act (Act No. 57 of 2003)
- Marine Living Resources Act (Act No. 18 of 1998)
- Sea Birds and Seals Protection Act (Act No. 46 of 1973)
- Lake Areas Development Act (Act No. 39 of 1975)
- Mountain Catchment Areas Act (Act No. 63 of 1970)
- Integrated Coastal Zone Management Act (Act No. 24 of 2008)

## ASSESSMENT OF POTENTIAL IMPACTS

### Description of potential impacts

Potential issues relevant to potential impacts on the ecology of the study area include the following:

- Impacts on biodiversity: this includes any impacts on populations of individual species of concern (flora and fauna), including protected species, and on overall species richness. This includes impacts on genetic variability, population dynamics, overall species existence or health and on habitats important for species of concern.
- Impacts on sensitive habitats: this includes impacts on any sensitive or protected habitats, including indigenous forest and/or woodland and wetland vegetation that leads to direct or indirect loss of such habitat.
- Impacts on ecosystem function: this includes impacts on any processes or factors that maintain ecosystem health and character, including the following:
  - disruption to nutrient-flow dynamics;
  - impedance of movement of material or water;
  - habitat fragmentation;
  - changes to abiotic environmental conditions;
  - changes to disturbance regimes, e.g. increased or decreased incidence of fire;
  - changes to successional processes;
  - effects on pollinators;
  - increased invasion by alien plants.

Changes to factors such as these may lead to a reduction in the resilience of plant communities and ecosystems or loss or change in ecosystem function.

- Secondary and cumulative impacts on ecology: this includes an assessment of the impacts of the proposed project taken in combination with the impacts of other known projects for the area or secondary impacts that may arise from changes in the social, economic or ecological environment.
- Impacts on the economic use of vegetation: this includes any impacts that affect the productivity or function of ecosystems in such a way as to reduce the economic value to users, e.g. reduction in grazing capacity, loss of harvestable products. It is a general consideration of the impact of a project on the supply of so-called ecosystem goods and services.

A number of direct risks to ecosystems that would result from **construction** of the proposed power line are as follows:

- Clearing of land for construction.
- Construction of access roads.
- Placement of power lines.
- Establishment of borrow and spoil areas.
- Chemical contamination of the soil by construction vehicles and machinery.
- Operation of construction camps.
- Storage of materials required for construction.

There are also risks associated with **operation** of the proposed facility, as follows:

- Maintenance of surrounding vegetation as part of management of the power line.
- Animal collisions with infrastructure, especially flying animals.
- Invasion of habitats by alien plants as a consequence of disturbance.

## Potential issues for the general study area

A summary of the potential ecological issues for the study area is as follows:

- Presence of natural vegetation on site, some of which is included in Provincial CBA areas and is therefore of potentially high conservation priority.
- Potential presence of two plant species of concern, the succulent, *Lithops lesliei* subsp. *lesliei*, listed as Near Threatened, and the herb, *Rennera stellata*, listed as Vulnerable.
- Potential presence of one protected plant species, *Harpagophytum procumbens*.
- Potential presence of two protected tree species, *Acacia erioloba* and *Boscia albitrunca*.
- Presence of pan depression areas.
- Potential presence of the some animals of potential conservation concern:
  - Brown Hyaena (NT)
  - Honey badger (NT)
  - Southern African Hedgehog (NT)
  - Giant Bullfrog (NT/LC)
  - Kori Bustard (VU),
  - Blue Crane (VU),
  - Secretarybird (NT).
- Potential invasion of natural habitats by alien invasive plants, thus causing additional impacts on biodiversity features.

Potential risks to the ecological receiving environment are therefore the following:

1. Loss of indigenous natural vegetation during construction;
2. Impacts on two listed plant species;
3. Impacts on protected plant species;
4. Impacts on two protected tree species;
5. Impacts on pan depression areas;
6. Mortality of populations of sedentary species during construction (terrestrial and aquatic);
7. Displacement of populations of mobile species (terrestrial);
8. Mortality of bird species of concern due to secondary factors, such as collisions with overhead power lines;
9. Introduction and/or spread of declared weeds and alien invasive plants in terrestrial habitats.

## Planning Phase impacts

There are no impacts that are likely to be created as a result of project planning.

## Construction Phase impacts

### **Impact 1: Impacts on indigenous natural vegetation**

The regional terrestrial vegetation type in the broad study area is Ghaap Plateaux Vaalbosveld, listed as Least Threatened. However, natural habitat on site has been identified as being of importance in the Provincial Conservation Assessment. Loss of some habitat will definitely occur, but this will be a small area in comparison to the total area of the vegetation type concerned.

**Table 4a: Impact table for Impact 1 for both power line options.**

Loss of indigenous natural vegetation
---------------------------------------

<i>Environmental parameter</i>	<i>Indigenous natural vegetation</i>	
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>Loss, degradation or fragmentation of vegetation.</i>	
<i>Extent</i>	<i>The impact will affect natural vegetation on site and possibly in immediately surrounding areas.</i>	
<i>Probability</i>	<i>The impact will probably happen.</i>	
<i>Reversibility</i>	<i>Reversible to some degree for power lines because of the limited local footprint. Secondary vegetation will probably never resemble the original vegetation found on site.</i>	
<i>Irreplaceable loss of resources</i>	<i>Some loss of resources will occur.</i>	
<i>Duration</i>	<i>The impact will be medium-term due to the fact that local impacts will soon recover through natural successional processes.</i>	
<i>Cumulative effect</i>	<i>Medium cumulative impact. Added to existing impacts on natural habitat, the current project will cause additional loss of vegetation.</i>	
<i>Intensity/magnitude</i>	<i>Low. Vegetation will continue to function.</i>	
<i>Significance rating</i>	<i>Low negative impact expected.</i>	
	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	1	1
Probability	3	2
Reversibility	3	3
Irreplaceable loss	2	2
Duration	2	2
Cumulative effect	2	2
Intensity/magnitude	1	1
Significance rating	-13 (low negative)	-12 (low negative)
Mitigation measures	<p><i>The following mitigation measures would help to limit impacts, but will not affect the extent, probability, reversibility, irreplaceable loss of resources, duration, cumulative effect or intensity:</i></p> <ol style="list-style-type: none"> <li><i>1. Compile a rehabilitation programme.</i></li> <li><i>2. Compile an Alien Plant Management Plan, including monitoring, to ensure minimal impacts on surrounding areas.</i></li> </ol>	

**Table 4b: Impact table for Impact 1 for substation.**

<b>Loss of indigenous natural vegetation</b>	
<i>Environmental parameter</i>	<i>Indigenous natural vegetation</i>
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>Loss, degradation or fragmentation of vegetation.</i>
<i>Extent</i>	<i>The impact will affect natural vegetation on site and possibly in immediately surrounding areas.</i>
<i>Probability</i>	<i>The impact will definitely happen.</i>
<i>Reversibility</i>	<i>Irreversible in human timeframes, since natural successional processes cannot compensate for complete local loss of habitat and diversity. Secondary vegetation will probably never resemble the original vegetation found on site.</i>

<i>Irreplaceable loss of resources</i>	<i>Significant loss of resources will occur.</i>	
<i>Duration</i>	<i>The impact will be permanent (mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient.)</i>	
<i>Cumulative effect</i>	<i>Medium cumulative impact. Added to existing impacts on natural habitat, the current project will cause additional loss of vegetation.</i>	
<i>Intensity/magnitude</i>	<i>Medium. Regional vegetation will continue to function.</i>	
<i>Significance rating</i>	<i>Medium negative impact expected.</i>	
	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	1	1
Probability	4	4
Reversibility	4	4
Irreplaceable loss	3	3
Duration	4	4
Cumulative effect	3	3
Intensity/magnitude	2	2
Significance rating	-38 (medium negative)	-38 (medium negative)
Mitigation measures	<p><i>The following mitigation measures would help to limit impacts, but will not affect the extent, probability, reversibility, irreplaceable loss of resources, duration, cumulative effect or intensity:</i></p> <ol style="list-style-type: none"> <li><i>1. Compile a rehabilitation programme.</i></li> <li><i>3. Compile an Alien Plant Management Plan, including monitoring, to ensure minimal impacts on surrounding areas.</i></li> </ol>	

**Impact 2: Impacts on listed plant species**

There are two species that were originally thought to potentially occur in the study area, the succulent, *Lithops lesliei* subsp. *lesliei*, listed as Near Threatened, and the herb, *Rennera stellata*, listed as Vulnerable. Based on the site inspection in which neither species was found, it is considered possible that *Rennera stellata* could occur on site within pan depression areas, but no plants were seen in these areas. Based on an assessment of available habitat on site, it is considered unlikely that any occur there. This potential impact will therefore not occur and is not assessed further.

**Impact 3: Impacts on protected plant species**

There is one species protected according to the National Environmental Management: Biodiversity Act, *Harpagophytum procumbens*, that may potentially occur on site. No individuals were found on site during the field survey and, based on an assessment of available habitat on site, it is considered unlikely that any occur there. This potential impact will therefore not occur and is not assessed further.

There are a number of species that may be protected according to provincial legislation. The possible presence of these on site is unknown due to the dry conditions at the time of the survey. There is therefore a possibility that additional protected species may occur there and that they may be detected at a later stage of the project. The assessment below is therefore based on this possibility.

**Table 5: Impact summary table for Impact 3 for all infrastructure components.**

<b>Loss of individuals of protected plants</b>		
<i>Environmental parameter</i>	<i>Protected plants, as per NEM:BA and provincial legislation.</i>	
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>Loss of individuals.</i>	
<i>Extent</i>	<i>The impact will affect local populations or individuals of the affected species.</i>	
<i>Probability</i>	<i>The impact may possibly happen.</i>	
<i>Reversibility</i>	<i>Partly reversible. Individuals can be rescued or else cultivated to replace lost specimens.</i>	
<i>Irreplaceable loss of resources</i>	<i>Marginal loss of resources could occur. The species that are likely to occur on site are likely to be relatively common throughout their range.</i>	
<i>Duration</i>	<i>The impact will be medium-term.</i>	
<i>Cumulative effect</i>	<i>Low cumulative impact. Cumulative effects will not be significant.</i>	
<i>Intensity/magnitude</i>	<i>Low. Loss of some individuals will be insignificant compared to the number that probably occur in surrounding areas.</i>	
<i>Significance rating</i>	<i>Low negative impact expected.</i>	
	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	1	1
Probability	2	2
Reversibility	2	2
Irreplaceable loss	2	1
Duration	2	2
Cumulative effect	2	1
Intensity/magnitude	1	1
Significance rating	-11 (low negative)	-9 (low negative)
Mitigation measures	<p><i>The following mitigation measures would help to limit impacts:</i></p> <ol style="list-style-type: none"> <li><i>1. It is a legal requirement to obtain permits for specimens that will be lost.</i></li> <li><i>2. A pre-construction walk-through survey will be required to locate any protected plants.</i></li> <li><i>3. Plants lost to the development can be rescued and planted in appropriate places in surrounding areas. This will reduce the irreplaceable loss of resources as well as the cumulative effect.</i></li> <li><i>4. If any protected plants are located during the pre-construction survey, a Plant Rescue Plan would be required to manage the process of attempting to rescue such individuals.</i></li> </ol>	

**Impact 4: Loss of individuals of protected trees**

There is one protected tree species that occurs in the vicinity, *Acacia erioloba*. No individuals were seen within the footprint of proposed infrastructure, but it is possible that individuals may occur on site, especially smaller trees that are not easy to see from a distance. The impact

assessment is therefore undertaken under the assumption that some small individuals may be located during the pre-construction walk-through phase of the project.

**Table 6: Impact summary table for Impact 4 for all infrastructure components.**

<b>Loss of individuals of protected trees</b>		
<i>Environmental parameter</i>	<i>Protected trees, as per National Forests Act.</i>	
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>Loss of individuals.</i>	
<i>Extent</i>	<i>The impact will affect local populations or individuals of the affected species.</i>	
<i>Probability</i>	<i>The impact will probably not happen. No individuals were found during the field survey. If small individuals are found, they can probably be left untouched under the power lines.</i>	
<i>Reversibility</i>	<i>Irreversible. Individuals are not possible to be rescued.</i>	
<i>Irreplaceable loss of resources</i>	<i>Marginal loss of resources could occur. The species that occurs on site is relatively common throughout its range and only a small number of individuals were seen to occur on site.</i>	
<i>Duration</i>	<i>The impact will be permanent.</i>	
<i>Cumulative effect</i>	<i>Low cumulative impact. Cumulative effects will not be significant.</i>	
<i>Intensity/magnitude</i>	<i>Low. Loss of some individuals will be insignificant compared to the number that probably occur in surrounding areas.</i>	
<i>Significance rating</i>	<i>Low negative impact expected.</i>	
	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	1	1
Probability	2	1
Reversibility	4	4
Irreplaceable loss	2	2
Duration	4	4
Cumulative effect	1	2
Intensity/magnitude	1	1
Significance rating	-14 (low negative)	-13 (low negative)
Mitigation measures	<p><i>The following mitigation measures would help to limit impacts:</i></p> <ol style="list-style-type: none"> <li><i>1. It is a legal requirement to obtain permits for specimens that will be lost.</i></li> <li><i>2. A pre-construction walk-through survey will be required to locate any protected trees and record information about each specimen.</i></li> <li><i>3. If any individuals are found, tower structures must be placed to avoid having to remove the trees.</i></li> </ol>	

**Impact 5: Impacts on pan depressions**

There are two small pan depressions occurring on site. The plant species composition within these areas is different to surrounding terrestrial areas, even though the site is within a relatively

dry region. Some loss of habitat may occur within these areas and this may possibly affect larger hydrological systems.

**Table 7: Impact summary table for Impact 5 for all infrastructure components.**

<b>Damage to pans and drainage areas</b>		
<i>Environmental parameter</i>	<i>Pan</i>	
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>Loss, degradation or fragmentation of vegetation.</i>	
<i>Extent</i>	<i>The impact will affect pan depressions on site.</i>	
<i>Probability</i>	<i>Assuming tower structures can be shifted to some degree to avoid sensitive features, it is unlikely that pans will be directly affected.</i>	
<i>Reversibility</i>	<i>Irreversible in human timeframes, since natural successional processes cannot compensate for complete local loss of habitat and diversity. Secondary vegetation will probably never resemble the original vegetation found on site.</i>	
<i>Irreplaceable loss of resources</i>	<i>Marginal loss of resources will occur.</i>	
<i>Duration</i>	<i>The impact will be long-term.</i>	
<i>Cumulative effect</i>	<i>Medium cumulative impact. Added to existing impacts on natural habitat, the current project will cause additional loss of habitat.</i>	
<i>Intensity/magnitude</i>	<i>Medium. Wetland systems will probably continue to function, but in a modified way.</i>	
<i>Significance rating</i>	<i>Medium negative impact expected.</i>	
	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	1	1
Probability	2	1
Reversibility	4	1
Irreplaceable loss	2	1
Duration	3	1
Cumulative effect	2	1
Intensity/magnitude	2	1
Significance rating	-28 (low negative)	-6 (low negative)
Mitigation measures	<p><i>The following mitigation measures would help to limit impacts:</i></p> <ol style="list-style-type: none"> <li><i>1. Avoid depression areas by siting the infrastructure to avoid these areas.</i></li> <li><i>2. Prevent erosion impacts on wetland systems.</i></li> <li><i>3. Rehabilitate disturbance as quickly as possible.</i></li> <li><i>4. Prevent invasion by alien plants.</i></li> <li><i>5. Undertake monitoring to evaluate whether further measures would be required to manage impacts.</i></li> </ol>	

**Impact 6: Mortality of populations of sedentary species**

There are seven animal species of conservation concern that could potentially be affected by the proposed project:

1. Brown Hyaena (NT)



2. Honey badger (NT)
3. Southern African Hedgehog (NT)
4. Giant Bullfrog (NT/LC)
5. Kori Bustard,
6. Blue Crane,
7. Secretarybird.

Only two of these species, Southern African Hedgehog and the Giant Bullfrog, are relatively sedentary and therefore considered to be potentially vulnerable to habitat loss, as related to this project.

**Table 8: Impact summary table for Impact 6 for all infrastructure components.**

<b>Loss of populations of sedentary animals</b>		
<i>Environmental parameter</i>	<i>Species of conservation concern</i>	
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>Loss of individuals/populations.</i>	
<i>Extent</i>	<i>The impact will affect local populations or individuals of the affected species.</i>	
<i>Probability</i>	<i>The impact is unlikely to happen.</i>	
<i>Reversibility</i>	<i>Partly reversible. Individuals may be rescued and translocated.</i>	
<i>Irreplaceable loss of resources</i>	<i>Marginal loss of resources could occur. The species that potentially occur on site have very wide geographical ranges.</i>	
<i>Duration</i>	<i>The impact will be short-term.</i>	
<i>Cumulative effect</i>	<i>Low cumulative impact. Cumulative effects will not be significant.</i>	
<i>Intensity/magnitude</i>	<i>Low. Loss of some individuals will be insignificant compared to the number that probably occur throughout their range.</i>	
<i>Significance rating</i>	<i>Low negative impact expected.</i>	
	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	1	1
Probability	2	1
Reversibility	2	1
Irreplaceable loss	2	1
Duration	1	1
Cumulative effect	2	1
Intensity/magnitude	1	1
Significance rating	-10 (low negative)	-7 (low negative)
Mitigation measures	<p><i>The following mitigation measures would help to limit impacts:</i></p> <ol style="list-style-type: none"> <li>1. <i>It is a legal requirement to obtain permits for specimens that will be lost.</i></li> <li>2. <i>A pre-construction walk-through survey will be required to locate any individuals and move them to surrounding habitats.</i></li> <li>3. <i>If populations of sedentary species are found on site, tower structures can be shifted to avoid them.</i></li> </ol>	

**Impact 7: Displacement of mobile fauna**

Construction activities, loss of habitat, noise, dust and general activity associated with the construction phase of the project are likely to cause all mobile species to move away from the site. Mobile species of conservation concern (two sedentary species are discussed for the previous impact) that could potentially be affected by the proposed project are as follows:

1. Brown Hyaena (NT)
2. Honey badger (NT)
3. Kori Bustard,
4. Blue Crane,
5. Secretarybird.

These are all highly mobile terrestrial species with a large home range and the ability to travel long distances in short periods of time. For these species, they may be locally displaced, but this will have little effect on the overall range of any of these species nor is it expected that any overall impacts will result from local displacement. This potential impact is therefore not assessed further.

**Operational Phase impacts**

**Impact 8: Mortality of birds by collision with vertical infrastructure**

During operation, flying species could potentially suffer mortality by collisions with vertical infrastructure, especially infrastructure with low visibility, such as power lines.

The species most affected by loss of individuals are species that are already threatened in their general range by other factors. These species appear on various Red Lists. Species that are not threatened are unlikely to be significantly negatively affected by loss of habitat, since they are generally widespread and/or catholic in their requirements. Also, there are certain groups of birds, the large, low-flying species (bustards, cranes, etc.) that are most at risk from power lines.

The general area where the power lines are proposed to be located is at the location of existing power lines, as well as busy roads, human settlement and other disturbances that are likely to lead to many species avoiding the area altogether.

**Table 9: Impact summary table for Impact 8 for power lines (both options).**

<b>Mortality of individuals due to collisions with power lines</b>	
<i>Environmental parameter</i>	<i>Threatened bird species</i>
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>Loss of individuals.</i>
<i>Extent</i>	<i>The impact will affect individuals on site and possibly in immediately surrounding areas.</i>
<i>Probability</i>	<i>The impact may possibly happen.</i>
<i>Reversibility</i>	<i>Partly reversible. Preventative measures could reduce mortality to below replacement levels.</i>
<i>Irreplaceable loss of resources</i>	<i>Marginal loss of resources will occur.</i>
<i>Duration</i>	<i>The impact will be long-term.</i>
<i>Cumulative effect</i>	<i>Medium cumulative impact. Cumulative effects will be minor.</i>
<i>Intensity/magnitude</i>	<i>Medium. May impact on population processes.</i>
<i>Significance rating</i>	<i>Low negative impact expected.</i>

	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	1	1
Probability	2	1
Reversibility	2	2
Irreplaceable loss	2	2
Duration	3	3
Cumulative effect	3	2
Intensity/magnitude	2	1
Significance rating	-26 (low negative)	-11 (low negative)
Mitigation measures	<i>Visibility devices could be placed on overhead powerlines, if necessary. This will reduce the probability slightly, but not to an extent that it will change the impact rating scores. The mitigation measure is therefore not required unless monitoring identifies this as an issue during operation.</i>	

**Impact 9: Establishment and spread of declared weeds and alien invader plants**

Major factors contributing to invasion by alien invader plants includes *inter alia* high disturbance (such as clearing for construction activities) and negative grazing practices (Zachariades *et al.* 2005). Exotic species are often more prominent near infrastructural disturbances than further away (Gelbard & Belnap 2003, Watkins *et al.* 2003). Consequences of this may include:

1. loss of indigenous vegetation;
2. change in vegetation structure leading to change in various habitat characteristics;
3. change in plant species composition;
4. change in soil chemical properties;
5. loss of sensitive habitats;
6. loss or disturbance to individuals of rare, endangered, endemic and/or protected species;
7. fragmentation of sensitive habitats;
8. change in flammability of vegetation, depending on alien species;
9. hydrological impacts due to increased transpiration and runoff; and
10. impairment of wetland function.

There is a moderate possibility that alien plants could be introduced to areas within the footprint of the proposed infrastructure from surrounding areas in the absence of control measures. The potential consequences may be of moderate seriousness for surrounding natural habitats due to the fact that a lot of natural vegetation still remains on site. Control measures could prevent the impact from occurring.

**Table 10: Impact summary table for Impact 8 for all infrastructure.**

<b>Establishment and spread of declared weeds</b>	
<i>Environmental parameter</i>	<i>Vegetation and habitat</i>
<i>Issue/Impact/Environmental Effect/Nature</i>	<i>Loss of habitat due to invasion by alien plants</i>
<i>Extent</i>	<i>The impact will affect habitat on site and possibly in immediately surrounding areas.</i>
<i>Probability</i>	<i>The impact will probably happen in the absence of control measures.</i>

<i>Reversibility</i>	<i>Partly reversible in the absence of control measures. Completely reversible if mitigation measures applied. Preventative measures will stop the impact from occurring.</i>	
<i>Irreplaceable loss of resources</i>	<i>Marginal to significant loss of resources will occur. Uncontrolled invasion can affect all nearby natural habitats.</i>	
<i>Duration</i>	<i>The impact will be long-term.</i>	
<i>Cumulative effect</i>	<i>Low cumulative impact. Cumulative effects will not be significant.</i>	
<i>Intensity/magnitude</i>	<i>Medium. Severe invasion can alter the functioning of natural ecosystems.</i>	
<i>Significance rating</i>	<i>Low negative impact expected.</i>	
	Pre-mitigation impact rating	Post-mitigation impact rating
Extent	1	1
Probability	3	2
Reversibility	2	1
Irreplaceable loss	3	2
Duration	3	3
Cumulative effect	2	2
Intensity/magnitude	2	1
Significance rating	-28 (medium negative)	-11 (low negative)
Mitigation measures	<i>Compile and implement an alien management plan. Undertake regular monitoring to detect alien invasions early so that they can be controlled. Implement control measures.</i>	

### **Decommissioning Phase impacts**

It is expected that the project will operate for a minimum of twenty years or more (a typical planned life-span for a project of this nature). Decommissioning will probably require a series of steps resulting in the removal of equipment from the site and rehabilitation of footprint areas. It is possible that the site could be returned to a rural nature, but it is unlikely that natural vegetation would become established on site for a very long time. The reality is that it is not possible to determine at this stage whether rehabilitation measures will be implemented or not or what the future plans for the site would be nor is it possible at this stage to determine what surrounding land pressures would be. These uncertainties make it impossible to undertake any assessment to determine possible impacts of decommissioning.

## **POSSIBLE MITIGATION MEASURES**

This section of the report provides a description of mitigation measures that could be applied to minimize identified impacts for this project. In terms of the location of features of concern, all mitigation measures apply to all components of the project.

### **The mitigation hierarchy approach**

The mitigation hierarchy consists of a number of sequential steps (avoid, mitigate, restore or rehabilitate and offset). This approach enables an infrastructure development project to work towards “no net loss” of biodiversity, and ideally, a net gain. The mitigation hierarchy is defined as:

- **Avoidance:** measures taken to avoid creating impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.
- **Minimisation:** measures taken to reduce the duration, intensity and / or extent of impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.
- **Rehabilitation/restoration:** measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/ or minimised.
- **Offset:** measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised and / or rehabilitated or restored, in order to achieve no net loss or a net gain of biodiversity. Offsets can take the form of positive management interventions such as restoration of degraded habitat, arrested degradation or averted risk, protecting areas where there is imminent or projected loss of biodiversity.

### **Mitigation measures**

#### ***Local shifting of components of the infrastructure***

Components of the infrastructure can be re-sited to avoid sensitive habitats or features, either partially or completely. This is especially important for avoiding CBA habitats, protected areas and buffer areas. The re-siting can also be used to create buffer areas around sensitive sites in order to protect their ecological integrity. In the case of the current project, there are various pan depressions where it has been recommended that these are not developed and that an appropriate buffer zone is maintained around them. Power line tower structures are relatively easy to microsite in this way.

#### ***Avoid impacts on pan depressions***

The pan depressions, as well as an appropriate buffer zone, should be excluded from development, if possible. This should apply especially to larger pan depressions and those that are in an unaltered state. For any pan depressions that will be affected, the appropriate permits will be required, as per the National Water Act.

#### ***Surface Runoff and Stormwater Management Plan***

The purpose of a Surface Runoff and Stormwater Management Plan is to prevent damage to areas downslope / downstream of the project area. This is an impact avoidance measure. This plan must indicate how all surface runoff generated as a result of the project and associated activities (during both the construction and operational phases) will be managed (e.g. artificial wetlands/stormwater and flood retention ponds) prior to entering any natural drainage system or wetland and how surface water runoff will be retained outside of any demarcated buffer/flood zones and subsequently released to simulate natural hydrological conditions.

### **Rehabilitation Programme**

The purpose of a Rehabilitation Plan is to provide a framework for rehabilitating areas outside of the infrastructure footprint that will be disturbed during the construction of the proposed project. Rehabilitation Programme should be established before operation. The programme must address the rehabilitation of the existing habitats as well as rehabilitation after closure. This Rehabilitation Programme must be approved by the relevant government departments. Rehabilitation can also be undertaken in habitats adjacent to sensitive areas that will not be developed, but that are currently disturbed by existing impacts on site. This will constitute a form of offset. Rehabilitation must include aspects such as undertaking rehabilitation as quickly as possible after disturbance, soil management measures and using native plants during rehabilitation.

### **Botanical walk-through survey**

A preconstruction walk-through survey should be undertaken to list the identity and location of all listed and protected species. The results of the walk-through survey should provide an indication of the number of individuals of each listed species that are likely to be impacted by the proposed development. The botanical walk-through survey is a requirement for various permit applications.

### **Search and rescue**

Search and rescue operation of all listed species within the activity footprint. For each individual plant that is rescued, the plant must be photographed before removal, tagged with a unique number or code and a latitude longitude position recorded using a hand-held GPS device. The plants must be planted into a container to be housed within a temporary nursery on site or immediately planted into the target habitat. If planted into natural habitat, the position must be marked to aid in future monitoring of that plant. Rescued plants housed in temporary nursery may be used in one of two ways: (1) transplanted into suitable natural habitats near to where they were rescued, or (2) used for replanting in rehabilitation areas. Receiver sites must be matched as closely as possible with the origin of the plants and, where possible, be placed as near as possible to where they originated.

### **Obtain permits for protected plants**

It is a legal requirement that permits will be required for any species protected according to National or Provincial legislation. The identity of species affected by such permit requirements can only be identified during the walk-through survey (previous mitigation measure). It is common practice for the authorities that issue the permits to require search and rescue of affected plants. There are a number of individuals of the protected tree, *Acacia erioloba*, that occur on site. The location and condition of each individual tree must be recorded and a permit obtained for the removal of each of these.

### **Alien plant management plan**

It is recommended that a monitoring programme be implemented to enforce continual eradication of alien and invasive species, especially within the riparian habitat. An Alien Invasive Programme is an essential component to the successful conservation of habitats and species. Alien species, especially invasive species are a major threat to the ecological functioning of natural systems and to the productive use of land. In terms of the amendments of the regulations under the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), landowners are legally responsible for the control of alien species on their properties. The protection of our natural systems from invasive species is further strengthened within Sections 70-77 of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004). This programme should include monitoring procedures.

***Undertake regular monitoring***

Monitoring should be undertaken to evaluate the success of mitigation measures. Monitoring methods must be in accordance with features that need to be monitored and can form part of a monitoring programme to be compiled.

***Worker education***

Educate workers (permanent staff and contractors) regarding the occurrence of important ecological features and resources in the area and the importance of their protection.

***Dust control***

Use abatement measures to minimise fugitive dust that could have a negative effect on vegetation and habitats, especially adjacent to sensitive areas and in areas adjacent to the project site.

## COMPARISON OF ALTERNATIVES

### Sendawo Power Line

There are two possible routes for the proposed power line, Alternative 2A and Alternative 2B. These share a common route across most of their length, but differ in the manner in which they enter Mookodi Substation. Alternative 2A is slightly to the west of 2B. In both cases the alternative section is through relatively degraded areas where various activities have affected the natural habitat.

#### Key

<b>PREFERRED</b>	The alternative will result in a low impact / reduce the impact
<b>FAVOURABLE</b>	The impact will be relatively insignificant
<b>NOT PREFERRED</b>	The alternative will result in a high impact / increase the impact
<b>NO PREFERENCE</b>	The alternative will result in equal impacts

Alternative	Preference	Reasons
<b>POWER LINES</b>		
Power Line Corridor Alternative 2A	<b>NO PREFERENCE</b>	Similar habitats and impacts.
Power Line Corridor Alternative 2B	<b>NO PREFERENCE</b>	Similar habitats and impacts.



## **DISCUSSION AND CONCLUSIONS**

### **Biodiversity features in the study area**

The vegetation type that occurs on site, Ghaap Plateaux Vaalbosveld, is classified as Least Threatened and also has a wide distribution and extent. From this perspective, the natural vegetation on the sites is therefore not considered to have high conservation status. The area is not within a Centre of Plant Endemism, nor does it occur in close proximity to an area identified as part of the National Parks Area Expansion Strategy, but is within areas identified in Provincial Conservation Plans to be of conservation priority.

Local factors that may lead to parts of the sites having elevated ecological sensitivity are the presence of pan depressions on site, the potential presence of two listed plant species, one protected plant species and the potential presence of various animal species of conservation concern. There are also two protected tree (*Acacia erioloba* and *Boscia albitrunca*) that possibly occurs in the general region. None of these species were found on site.

The pan depression areas on site are identified within the Provincial Conservation Assessment as CBA1 areas, meaning that they are considered to be of conservation importance. Wetlands (including pans) are protected under national legislation (National Water Act). Any impacts on these areas would require a permit from the National Department of Water Affairs. The Provincial Conservation Assessment also maps a buffer zone of 500 m around each pan feature.

The area potentially affected by the proposed infrastructure is also mapped as an Ecological Support Area in terms of most of it being on a dolomite area. These dolomite areas and the associated aquifers are considered to be ecologically important in terms of being groundwater recharge areas.

A small part of the area potentially affected by the proposed infrastructure falls within a corridor area in terms of the Provincial-level biodiversity corridor network aimed at retaining connectivity between geographical areas. The intention is probably that these areas are retained in a natural state.

There are a number of animal species of conservation concern that may occur in habitats within the study area. This includes one frog species, the Giant Bullfrog, and three mammal species (Honey Badger (NT), Brown Hyaena (NT) and Southern African Hedgehog (NT)) and three bird species of conservation concern (Kori Bustard (VU), Blue Crane (VU), Secretarybird (NT)). Lists and habitat requirements for these species are provided in the appendices to this report.

Bats do not appear, from this initial assessment, to be of major concern. There is a maximum of three species of low conservation concern that could be affected. All species are listed as Near Threatened in South Africa and globally as Least Concern. The key factor is the presence of roosting habitats nearby, which is of higher concern in areas close to mountainous or rocky hillside topography. There are no such topographical features in close proximity to the project study area.

One protected amphibian species, the Giant Bullfrog, and one protected reptile, the Southern African Python, have a geographical distribution that includes the site. These species are protected according to the National Environmental Management: Biodiversity Act (Act No 10 of 2004). Under this Act, a permit would be required for any activity which is of a nature that may negatively impact on the survival of a listed protected species. The Giant Bullfrog is most likely to be found near seasonal pans or water sources and the Southern African Python in rocky

kloofs, usually near water. Based on the field survey, it is considered unlikely that either of these species occurs in the study area.

The study area consists mostly of natural vegetation. Transformed and degraded areas associated with the main road, settlement of Tierkloof and Mookodi Substation, have low sensitivity and conservation value. Most areas have medium-high sensitivity and pan depressions have high sensitivity.

### Summary of potential impacts

A summary of the potential risks to the ecological receiving environment are therefore the following:

1. Impacts on indigenous natural vegetation;
2. Impacts on two listed plant species (not found to occur on site);
3. Impacts on protected plant species (not found to occur on site);
4. Impacts on two protected tree species (not found to occur on site);
5. Impacts on pan depression areas;
6. Mortality of sedentary animals;
7. Displacement of mobile fauna;
8. Mortality of birds by collision with vertical infrastructure;
9. Establishment and spread of declared weeds and alien invader plants.

Following a field assessment of the site, many of these impacts were assessed as unlikely to occur (Impacts 2, 3, 4, 6 and 7). A summary and comparison between pre- and post-mitigation phases is provided in Table 11 below.

**Table 11: Comparison of summarized impacts on environmental parameters.**

Environmental parameter	Issues	Rating prior to mitigation	Average	Rating post mitigation	Average
Indigenous natural vegetation	Loss (substation)	-38		-38	
Indigenous natural vegetation	Loss (power lines)	-13		-12	
Protected plant species	Loss of individuals	-11		-9	
Protected trees	Loss of individuals	-14		-13	
Pan depressions	Damage, loss of vegetation	-28		-6	
Sedentary fauna	Loss of individuals	-10		-7	
Bird species of conservation concern	Collision with power lines	-26		-11	
Natural habitat	Invasion by alien invasive plant species leading to habitat loss and/or degradation	-28		-11	
			<b>- 21.0</b>		<b>-13.4</b>
			Low Negative Impact		Low Negative Impact

There is no preference between power line alternatives, primarily because they have a similar effect on the ecological receiving environment, affect similar habitats and are not significantly different in length.

For all potential impacts, the cumulative impacts of this project in combination with similar projects is likely to be of low significance, with the exception of impacts on pan depressions, which may possibly be moderate due to impacts from other sources.

## **Conclusions**

There are some issues related to the ecology of the site that could result in potentially significant ecological impacts. The seriousness of these impacts is not considered to be high. There are a number of impacts for which there is a low probability that they will occur, but if they do occur then it requires permits to be issued, either by National or Provincial authorities and additional field data is required for the permit applications.

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**APPENDICES:****Appendix 1: Plant species of conservation importance (Threatened, Near Threatened and Declining) that have historically been recorded in the general geographical area that includes Copperton.**

Sources: South African National Biodiversity Institute in Pretoria.

Family	Taxon	Status	Distribution and habitat	Likelihood of occurrence on site
ASTERACEAE	<i>Rennera stellata</i>	VU	Northern Cape and North West Province: Vryburg, Koopmansfontein and Potfontein, only known from three localities. Seasonally waterlogged pans, unweathered calcrete rocks, full sun.	<b>HIGH</b> , within known distribution, habitat on site potentially suitable.
MESEMBRYANTHEMACEAE	<i>Lithops lesliei</i> subsp. <i>lesliei</i>	NT	Free State, Gauteng, Limpopo, Mpumalanga, Northern Cape, North West. Primarily in arid grasslands, usually in rocky places, growing under the protection of forbs and grasses.	<b>MEDIUM</b> , within known range, habitat on site may be suitable

\* Conservation Status Category assessment according to IUCN Ver. 3.1 (IUCN, 2001), as evaluated by the Threatened Species Programme of the South African National Biodiversity Institute in Pretoria. \*IUCN (3.1) Categories: VU = Vulnerable, EN = Endangered, CR = Critically Endangered, NT = Near Threatened.

## Appendix 2: List of protected tree species (National Forests Act).

<i>Acacia erioloba</i>	<i>Acacia haematoxylon</i>
<i>Adansonia digitata</i>	<i>Afzelia quanzensis</i>
<i>Balanites</i> subsp. <i>maughamii</i>	<i>Barringtonia racemosa</i>
<i>Boscia albitrunca</i>	<i>Brachystegia spiciformis</i>
<i>Breonadia salicina</i>	<i>Bruguiera gymnorhiza</i>
<i>Cassipourea swaziensis</i>	<i>Catha edulis</i>
<i>Ceriops tagal</i>	<i>Cleistanthus schlechteri</i> var. <i>schlechteri</i>
<i>Colubrina nicholsonii</i>	<i>Combretum imberbe</i>
<i>Curtisia dentata</i>	<i>Elaeodendron (Cassine) transvaalensis</i>
<i>Erythrophysa transvaalensis</i>	<i>Euclea pseudebenus</i>
<i>Ficus trichopoda</i>	<i>Leucadendron argenteum</i>
<i>Lumnitzera racemosa</i> var. <i>racemosa</i>	<i>Lydenburgia abottii</i>
<i>Lydenburgia cassinoides</i>	<i>Mimusops caffra</i>
<i>Newtonia hildebrandtii</i> var. <i>hildebrandtii</i>	<i>Ocotea bullata</i>
<i>Ozoroa namaensis</i>	<i>Philenoptera violacea (Lonchocarpus capassa)</i>
<i>Pittosporum viridiflorum</i>	<i>Podocarpus elongatus</i>
<i>Podocarpus falcatus</i>	<i>Podocarpus henkelii</i>
<i>Podocarpus latifolius</i>	<i>Protea comptonii</i>
<i>Protea curvata</i>	<i>Prunus africana</i>
<i>Pterocarpus angolensis</i>	<i>Rhizophora mucronata</i>
<i>Sclerocarya birrea</i> subsp. <i>caffra</i>	<i>Securidaca longependunculata</i>
<i>Sideroxylon inerme</i> subsp. <i>inerme</i>	<i>Tephrosia pondoensis</i>
<i>Warburgia salutaris</i>	<i>Widdringtonia cedarbergensis</i>
<i>Widdringtonia schwarzii</i>	

*Acacia erioloba* and *Boscia albitrunca* have a geographical distribution that coincides with the study areas.

### **Appendix 3: Animal species with a geographical distribution that includes the study area.**

Notes:

1. Species of conservation concern are in red lettering.
2. Species protected according to the National Environmental Management: Biodiversity Act of 2004 (Act 10 of 2000) marked with "N"

#### **Mammals:**

Red hartebeest  
Springbok  
White rhinoceros  
Blue wildebeest  
<sup>N</sup>Black rhinoceros (arid ecotype) CR  
Plains zebra  
Giraffe  
<sup>N</sup>Roan antelope VU  
Klipspringer  
Gemsbok  
Warthog  
Steenbok  
Common duiker  
Eland  
Kudu  
Rock hyrax  
<sup>N</sup>Cape clawless otter  
Water mongoose  
Black-backed jackal  
Caracal  
Yellow mongoose  
<sup>N</sup>Black-footed cat  
African wild cat  
Slender mongoose  
Small-spotted genet  
Large-spotted genet  
<sup>N</sup>Brown hyaena NT  
Striped polecat  
<sup>N</sup>Spotted-necked otter NT  
<sup>N</sup>Honey badger NT  
Bat-eared fox  
<sup>N</sup>Leopard  
African weasel  
Aardwolf  
Suricate  
<sup>N</sup>Cape fox  
<sup>N</sup>Natal long-fingered bat NT  
Cape serotine bat  
Egyptian slit-faced bat  
<sup>N</sup>Geoffroy's horseshoe bat NT  
<sup>N</sup>Darling's horseshoe bat NT  
Flat-headed free-tailed bat  
Egyptian free-tailed bat  
<sup>N</sup>South African hedgehog NT  
Reddish-grey musk shrew  
Tiny musk shrew  
Lesser red musk shrew

Lesser grey-brown musk shrew  
Cape/desert hare  
Scrub/savannah hare  
**Jameson's red rock rabbit**  
Vervet monkey  
Chacma baboon  
Red veld rat  
Tete veld rat  
Namaqua rock mouse  
Common mole rat  
Grey climbing mouse  
Short-tailed gerbil  
Hairy-footed gerbil  
Woodland dormouse  
Porcupine  
Single-striped mouse  
Large-eared mouse  
Multimammate mouse  
Angoni vlei rat  
Vlei rat  
Springhare  
Striped mouse  
Pouched mouse  
**Kreb's fat mouse**  
Highveld gerbil  
Bushveld gerbil  
Tree rat  
Greater cane rat  
Cape ground squirrel  
Rock elephant shrew  
Aardvark

#### **Reptiles:**

Puff adder  
Horned adder  
Rhombic night adder  
Cape cobra  
Mozambique spitting cobra  
Rinkhals  
Highveld garter snake  
Boomslang  
Southern stiletto snake  
Short-snouted whip snake  
Kalahari sand snake  
Striped skaapsteker  
Common tiger snake  
Herald snake  
Black-headed centipede eater



<sup>N</sup>Southern African python  
 Brown house snake  
 (Aurora house snake)  
 Common brown water snake  
 Mole snake  
 Two-striped shovel-snout  
 Common slug-eater  
 Common wolf snake  
 Common egg-eater  
 Delalande's beaked blind snake  
**Bibron's blind snake**  
**Peter's worm snake**  
 Common ground agama  
**Distant's ground agama**  
 Southern rock agama  
 Common flap-necked chameleon  
 Rock monitor  
 Water monitor  
 Common rough-scaled lizard  
**Holub's sandveld lizard**  
 (Spotted sandveld lizard)  
 Spotted sand lizard  
 Thin-tailed legless skink  
**Wahlberg's snake-eyed skink**  
 Cape skink  
 Speckled rock skink  
 Variable skink  
 Yellow-throated plated lizard  
 Karoo girdled lizard  
 Common dwarf gecko  
 Cape gecko  
 Marsh terrapin  
 Leopard tortoise  
 Kalahari tent tortoise

### **Amphibians**

Bushveld rain frog  
 Eastern olive toad  
 Guttural toad  
 Western olive toad  
 Red toad  
 Bubbling kassina  
 Common platanna  
**Boettger's caco**  
 Common river frog  
<sup>N</sup>**Giant bullfrog NT**  
 Tremolo sand frog  
**Tandy's sand frog**

### **Birds**

Avocet Pied  
 Babbler southern pied  
 Barbet Acacia Pied  
 Barbet crested  
 Batis Pririt

Bee-eater European  
 Bee-eater little  
 Bee-eater Swallow-tailed  
 Bishop Southern Red  
 Bishop yellow-crowned  
 Bittern little  
 Bokmakierie  
 Brubru  
 Bulbul African Red-eyed  
 Bunting Cinnamon-breasted  
 Bunting golden-breasted  
 Bunting Lark-like  
<sup>N</sup>**Bustard Kori VU**  
 Buttonquail small  
 Buzzard Jackal  
 Buzzard Steppe  
 Canary black-throated  
 Canary Yellow  
 Chat Ant-eating  
 Chat Familiar  
 Cisticola Desert  
 Cisticola Levillant's  
 Cisticola Rattling  
 Cisticola tinkling  
 Cisticola zitting  
 Coot Red-knobbed  
 Cormorant Reed  
 Cormorant white-breasted  
 Coucal **Burchell's**  
**Courser Burchell's**  
 Courser Double-banded  
 Courser Temminck's  
 Crake black  
<sup>N</sup>**Crane Blue VU**  
 Crombec Long-billed  
 Crow Cape  
 Crow Pied  
 Cuckoo African  
 Cuckoo Diderick  
 Cuckoo Great Spotted  
 Cuckoo Jacobin  
 Curlew Eurasian  
 Darter African  
 Dove Cape Turtle-  
 Dove Laughing  
 Dove Namaqua  
 Dove Red-eyed  
 Dove Rock  
 Drongo Fork-tailed  
 Duck African Black  
 Duck Comb  
 Duck Fulvous  
 Duck Maccoa  
 Duck White-backed  
 Duck White-faced  
 Duck Yellow-billed  
 Eagle African Fish-

Eagle Black-chested Snake-  
 Eagle Booted  
 Eagle Brown Snake-  
<sup>N</sup>Eagle Martial VU  
 Eagle Tawny VU  
 Egret Cattle  
 Egret Great  
 Egret Little  
 Egret Yellow-billed  
 Eremomela Yellow-bellied  
 Falcon Lanner NT  
 Falcon Peregrine NT  
 Falcon Red-footed  
 Falcon Red-knecked  
 Finch Red-headed  
 Finch Scaly-feathered  
 Firefinch Red-billed  
 Fiscal Common  
 Flamingo Greater NT  
 Flamingo Lesser NT  
 Flycatcher Chat  
 Flycatcher Fairy  
 Flycatcher Fiscal  
 Flycatcher Spotted  
 Francolin Orange River  
 Go-away-bird Grey  
 Godwit Black-tailed  
 Goose Egyptian  
 Goose Spur-winged  
 Goshawk Gabar  
 Goshawk Southern Pale Chanting-  
 Grebe Black-necked  
 Grebe Little  
 Greenshank Common  
 Guineafowl Helmeted  
 Gull Grey-headed  
 Hamerkop  
 Harrier African Marsh- VU  
 Harrier Black VU  
**Harrier Montagu's**  
 Harrier Pallid NT  
 Harrier Western Marsh-  
 Hawk African Harrier-  
 Heron Black  
 Heron Black-crowned Night-  
 Heron Black-headed  
 Heron Goliath  
 Heron Grey  
 Heron Purple  
 Heron Squacco  
 Honeyguide Greater  
 Honeyguide Lesser  
 Hoopoe African  
 Hornbill African Grey  
 Hornbill Southern Yellow-billed  
 Ibis African Sacred  
 Ibis Glossy

Ibis Hadedda  
 Indigobird Village  
 Kestrel Greater  
<sup>N</sup>Kestrel Lesser VU  
 Kestrel Rock  
 Kingfisher Brown-hooded  
 Kingfisher Malachite  
 Kingfisher Pied  
 Kingfisher Striped  
 Kite Black  
 Kite Black-shouldered  
 Kite Yellow-billed  
 Korhaan Northern Black  
 Korhaan Red-crested  
 Lapwing Blacksmith  
 Lapwing Crowned  
 Lark Eastern Clapper  
 Lark Fawn-coloured  
 Lark Monotonous  
 Lark Pink-billed  
 Lark Red-capped  
 Lark Rufous-naped  
 Lark Sabota  
 Lark Spike-heeled  
 Longclaw Cape  
 Martin Banded  
 Martin Brown-throated  
 Martin Common House-  
 Martin Rock  
 Martin Sand  
 Moorhen Common  
 Mousebird Red-faced  
 Mousebird White-backed  
 Neddicky  
 Nightjar European  
 Nightjar Rufous-cheeked  
 Oriole Eurasian Golden  
 Ostrich Common  
 Owl Barn  
 Owl Marsh  
 Owl Southern White-faced Scops-  
 Owl Spotted Eagle-  
**Owl Verraeux's Eagle-**  
 Owlet Pearl-spotted  
 Petronia Yellow-throated  
 Pigeon Speckled  
 Pipit African  
 Pipit Buffy  
 Plover Caspian  
 Plover Chestnutbanded NT  
 Plover Kittlitz's  
 Plover Common Ringed  
 Plover Three-banded  
 Pochard Southern  
 Pratincole Black-winged NT  
 Prinia Black-chested  
 Phytillia Green-winged

Quail Common  
 Quailfinch African  
 Quelea Red-billed  
 Rail African  
 Robin Kalahari Scrub-  
 Robin Karoo Scrub-  
 Robin-Chat Cape  
 Roller European  
 Roller Lilac-breasted  
 Roller Purple  
 Ruff  
 Sanderling  
 Sandgrouse **Burchell's**  
 Sandgrouse Namaqua  
 Sandpiper Common  
 Sandpiper Curlew  
 Sandpiper Marsh  
 Sandpiper Wood  
 Scimitarbill Common  
**Secretarybird NT**  
 Shelduck South African  
 Shikra  
 Shoveler Cape  
 Shrike Crimson-breasted  
 Shrike Lesser Grey  
 Shrike Magpie  
 Shrike Red-backed  
 Snipe African  
**Snipe Greater Painted- NT**  
 Sparrow Cape  
 Sparrow Great  
 Sparrow House  
 Sparrow Southern Grey-headed  
 Sparrow-Weaver White-browed  
 Sparrowlark Chestnut-backed  
 Sparrowlark Grey-backed  
 Spoonbill African  
**Spurfowl Swainson's**  
 Starling Cape Glossy  
 Starling Palewinged  
 Starling Wattled  
 Stilt Black-winged  
 Stint Little  
 Stonechat African  
**Stork Abdim's**  
<sup>N</sup>**Stork Black NT**  
**Stork Marabou NT**  
 Stork White  
**Stork Yellow-billed NT**  
 Sunbird Dusky  
 Sunbird Marico  
 Swallow Barn  
 Swallow Greater Striped  
 Swallow Pearl-breasted  
 Swallow Red-breasted  
 Swallow South African Cliff-  
 Swallow White-throated

Swampphen African Purple  
 Swift African Black  
 Swift African Palm  
 Swift **Bradfield's**  
 Swift Common  
 Swift Little  
 Swift White-rumped  
 Tchagra Brown-crowned  
 Teal Cape  
 Teal Hottentot  
 Teal Red-billed  
 Tern Whiskered  
 Tern White-winged  
 Thick-knee Spotted  
 Thrush Groundscraper  
 Thrush Karoo  
 Thrush Short-toed Rock-  
 Tit Ashy  
 Tit Cape Penduline-  
 Tit-Babbler Chestnut-vented  
 Turnstone Ruddy  
<sup>N</sup>**Vulture Cape VU**  
<sup>N</sup>**Vulture Lappet-faced VU**  
<sup>N</sup>**Vulture White-backed VU**  
 Wagtail Cape  
 Warbler African Reed-  
 Warbler Barred Wren-  
 Warbler Garden  
 Warbler Great Reed  
 Warbler Icterine  
 Warbler Rufous-eared  
 Warbler Sedge  
 Warbler Willow  
 Waxbill Black-faced  
 Waxbill Common  
 Waxbill Violet-eared  
 Weaver Red-billed Buffalo-  
 Weaver Sociable  
 Weaver Southern Masked-  
 Wheatear Capped  
 Wheatear Mountain  
 Whimbrel Common  
 White-eye Orange River  
 Whitethroat Common  
 Whydah Long-tailed Paradise  
 Whydah Pin-tailed  
 Whydah Shaft-tailed  
 Widowbird Long-tailed  
**Woodpecker Bennet's**  
 Woodpecker Cardinal  
 Woodpecker Golden-tailed

**Appendix 4: Threatened vertebrate species with a geographical distribution that includes the Copperton area.**

**MAMMALS**

Common name	Taxon	Habitat <sup>1</sup>	National status	Global status <sup>2</sup>	Likelihood of occurrence
Black rhinoceros	<i>Diceros bicornis bicornis</i>	Wide variety of habitats, but currently only occurs in game reserves.	CR	CR	<b>NONE</b> , only occurs in game reserves
Roan antelope	<i>Hippotragus equinus</i>	Medium to tall grassland in open savannah. Only occurs in reserves and on private game farms.	VU	LC	<b>LOW</b> , overall geographical distribution includes this area, general habitat is suitable, but only occurs in reserves.
Brown hyaena	<i>Hyaena brunnea</i>	All vegetation types, including urban areas. Scavenger.	NT	NT	<b>HIGH</b> , within known distribution range, habitat is suitable
Spotted-necked otter	<i>Lutra maculicollis</i>	Permanent, unsilted and unpolluted rivers, streams and freshwater lakes, where sufficient numbers of its prey are present. Adequate riparian vegetation is essential to provide cover during periods of inactivity.	NT	LC	<b>NONE</b> , within known distribution range, but no suitable habitat
Honey badger	<i>Mellivora capensis</i>	Wide variety of habitats. Probably only in natural habitats.	NT	LC	<b>HIGH</b> , within known distribution range, habitat is suitable
Natal long-fingered bat	<i>Miniopterus natalensis</i>	Occurs widely in the region, but more often in the southern and eastern parts than the arid west. It is predominantly a temperate to sub-tropical species with the core of its distribution in the savannas and grasslands of southern Africa. It is cave-dependent and congregates in huge numbers in suitable sites. Uses separate hibernacula and summer maternity roosts. Females migrate between these caves, which may be up to 150 km apart.	NT	LC	<b>LOW</b> , overall geographical distribution includes this area, general habitat is suitable – no caves on site.
Geoffroy's horseshoe bat	<i>Rhinolophus clivosus</i>	Caves and subterranean habitats; fynbos, shrubland, grassland, succulent and Nama-karoo; insectivore	NT	LC	<b>LOW</b> , overall geographical distribution includes this area, general habitat is suitable – no caves on site.
Darling's horseshoe bat	<i>Rhinolophus darlingi</i>	Caves and subterranean habitats. Woodland savannah.	NT	LC	<b>LOW</b> , overall geographical distribution includes this area, general habitat not suitable – no caves on site.
South African hedgehog	<i>Atelerix frontalis</i>	Variety of terrestrial habitats with good ground cover.	NT	LC	<b>MEDIUM</b> , within geographical range and suitable habitat probably occurs on site.

<sup>1</sup>Distribution and national status according to Friedmann & Daly 2004.

<sup>2</sup>Global status according to IUCN 2010. IUCN Red List of Threatened Species. Version 2010.3. ([www.iucnredlist.org](http://www.iucnredlist.org)). Downloaded on 11 September 2010.

**AMPHIBIANS**

Common name	Species	Habitat	Status	Likelihood of occurrence
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Giant Bullfrog	<i>Pyxicephalus adspersus</i>	Widely distributed in southern Africa, mainly at higher elevations. Inhabits a variety of vegetation types where it breeds in seasonal, shallow, grassy pans in flat, open areas; also utilises non-permanent vleis and shallow water on margins of waterholes and dams. Prefer sandy substrates although they sometimes inhabit clay soils.	NT <sup>1</sup> LC <sup>2</sup> Protected (NEMBA)	<b>MEDIUM</b> , within known distribution range and partially suitable habitat occurs on site.
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<sup>1</sup>Status according to Minter et al. 2004.

<sup>2</sup>Status according to IUCN 2010. IUCN Red List of Threatened Species. Version 2010.3. ([www.iucnredlist.org](http://www.iucnredlist.org)). Downloaded on 11 September 2010.

## REPTILES

Common name	Species	Habitat	Status <sup>3</sup>	Likelihood of occurrence
None				

<sup>3</sup>Distribution according to Alexander & Marais 2007.

<sup>4</sup>Status according to Alexander & Marais 2007.

## BIRDS

Common name	Species	Habitat	Status	Importance of site for species
Kori Bustard	<i>Ardeotis kori</i>	Open plains of karoo, highveld grassland, Kalahari sandveld, arid scrub, Namib Desert, lightly wooded savanna, bushveld. Very common resident in study area.	VU <sup>1</sup> NT <sup>2</sup>  Protected (NEMBA)	LOW, breeding, MEDIUM, foraging
Blue Crane	<i>Anthropoides paradisea</i>	Midland and highland grassveld, edge of karoo, cultivated land, edges of vleis. Roosts on ground or in shallow water. Uncommon resident in study area. <b>Nest:</b> Scrape on bare ground or rock (klipplaat) in open grassveld, often in moist places; sometimes thinly lined or ringed with pebbles, sheep droppings or bits of plant material.	VU <sup>1</sup> VU <sup>2</sup>  Protected (NEMBA)	LOW, breeding, MEDIUM, foraging
Martial Eagle	<i>Polemaetus bellicosus</i>	The Martial Eagle is widespread but uncommon throughout South Africa and neighbouring countries. It tolerates a wide range of vegetation types, being found in open grassland, scrub, Karoo and woodland. It relies on large trees (and electricity pylons) to provide nest sites. It is found typically in flat country and is rarer in mountains and forests. One of the main reason it is declining is because of persecution on private land. This species has been recorded from the study area and many surrounding areas. Common resident in study area.	VU <sup>1</sup> VU <sup>2</sup>  Protected (NEMBA)	LOW, breeding, LOW, foraging
Tawny Eagle	<i>Aquila rapax</i>	Woodland and savanna to semi-arid savanna or grassland with scattered <i>Acacia</i> trees. Uncommon resident in study area.	VU <sup>1</sup> VU <sup>2</sup>  Protected (NEMBA)	LOW, breeding, LOW, foraging
Lanner Falcon	<i>Falco biarmicus</i>	Most frequent in open grassland, open or cleared woodland, and agricultural areas. Breeding pairs generally favour habitats where cliffs available as nest and roost sites, but will use alternative sites (eg trees, electricity pylons, buildings) if cliffs absent. Widespread species, occurring in Afrotropics, Middle East and western Palearctic. Occurs in mountains or open country from semidesert to woodland and agricultural land; also cities (Durban, Harare). Uncommon resident in study area.	NT <sup>1</sup> LC <sup>2</sup>	LOW, breeding, LOW, foraging
Peregrine Falcon	<i>Falco peregrinus</i>	Cliffs, mountains, steep gorges; may hunt over open grassland, farmland and forests; rarely enters cities to hunt pigeons.	NT <sup>1</sup> LC <sup>2</sup>	ZERO, breeding, LOW, foraging

Common name	Species	Habitat	Status	Importance of site for species
		Uncommon non-breeding migrant in study area.		
Greater Flamingo	<i>Phoenicopterus ruber</i>	Large bodies of shallow water, both inland and coastal; saline and brackish waters preferred. Uncommon resident in study area.	NT <sup>1</sup> LC <sup>2</sup>	ZERO, breeding, ZERO, foraging
Lesser Flamingo	<i>Phoenicopterus minor</i>	Larger brackish or saline inland and coastal waters. Common resident in study area.	NT <sup>1</sup> NT <sup>2</sup>	ZERO, breeding, ZERO, foraging
Harrier Black	<i>Circus maurus</i>	Grassveld, karoo scrub, mountain fynbos, cultivated lands, subalpine vegetation, semidesert. Endemic to southern Africa. Uncommon non-breeding migrant in study area. Dry grassland, Karoo scrub and agricultural fields.	VU <sup>1</sup> VU <sup>2</sup>	ZERO, breeding, LOW, foraging
Harrier African Marsh-	<i>Circus ranivorus</i>	Almost exclusively inland and coastal wetlands. Uncommon resident in study area. Roosts in dense grass or reeds, sometimes communally when not breeding.	VU <sup>1</sup> LC <sup>2</sup>	LOW, breeding, LOW, foraging
Harrier Pallid	<i>Circus macrourus</i>	Grasslands associated with open pans or flood plains; also croplands. Uncommon non-breeding migrant in study area.	NT <sup>1</sup> NT <sup>2</sup>	ZERO, breeding, LOW, foraging
Lesser Kestrel	<i>Falco naumannii</i>	Open grassveld, mainly on highveld, usually near towns or farms. Common non-breeding migrant in study area.	VU <sup>1</sup> na <sup>2</sup>	ZERO, breeding, LOW, foraging
Chestnutbanded Plover	<i>Charadrius pallidus</i>	Saline lagoons, saline and brackish pans, saltworks, occasionally estuaries and sandy lagoons. Uncommon resident in study area.	NT <sup>1</sup> NT <sup>2</sup>	LOW, breeding, LOW, foraging
Black-winged pratincole	<i>Glareola nordmanni</i>	Breeds mainly on alkaline flats and salt pans in river valleys and lake depressions, also on fields and fallow lands devoid of vegetation. Large colonies always near water and damp meadows or marshes overgrown with dense grass; access to drinking water important. In winter quarters, prefers open grassland, edges of pans and cultivated fields, but most common in seasonally wet grasslands and pan systems. Attracted to damp ground after rains, also to agricultural activities, incl mowing and ploughing, and to newly flooded grasslands. Common non-breeding migrant in study area.	NT <sup>1</sup> NT <sup>2</sup>	ZERO, breeding, LOW, foraging
Secretarybird	<i>Sagittarius serpentarius</i>	Widespread across South Africa, occurring in savanna and open grassland from coastal regions to high altitudes, but avoids thick bush and forest. Sensitive to disturbance and high human population numbers - higher numbers usually found in conservation areas. Common resident in study area.	NT <sup>1</sup> VU <sup>2</sup>	LOW, breeding, MEDIUM, foraging
Greater painted snipe	<i>Rostratula benghalensis</i>	Dams, pans and marshy river flood plains. Favours waterside habitats with substantial cover and receding water levels with exposed mud among vegetation, departing when water recedes beyond fringes of vegetation. Rare in seasonally flooded grassland and palm savanna in Ovamboland, Namibia. Uncommon resident in study area.	NT <sup>1</sup> LC <sup>2</sup>	ZERO, breeding, ZERO, foraging
Black Stork	<i>Ciconia nigra</i>	Feeds in or around marshes, dams, rivers and estuaries; breeds in mountainous regions. Common resident in study area.	NT <sup>1</sup> LC <sup>2</sup>  Protected (NEMBA)	ZERO, breeding, LOW, foraging
Marabou Stork	<i>Leptoptelos crumeniferus</i>	Open to semi-arid woodland, bushveld, fishing villages, rubbish tips, lake shores. Uncommon resident in study area.	NT <sup>1</sup> LC <sup>2</sup>	ZERO, breeding, LOW, foraging
Yellow-billed Stork	<i>Mycteria ibis</i>	Mainly inland waters; rivers, dams, pans, floodplains, marshes; less often estuaries.	NT <sup>1</sup> LC <sup>2</sup>	ZERO, breeding, LOW, foraging

Common name	Species	Habitat	Status	Importance of site for species
		Uncommon non-breeding migrant in study area.		
Cape vulture	<i>Gyps coprotheres</i>	Wide range of habitats up to ca 3 000 m; closely linked to subsistence communal-grazing areas, where stock losses high. Uncommon resident in study area. Nests on cliff ledges.	VU <sup>1</sup> VU <sup>2</sup>  Protected (NEMBA)	ZERO, breeding, LOW, foraging
Lappet-faced Vulture	<i>Torgos tracheliotus</i>	Savanna to desert. Common resident in study area.	VU <sup>1</sup> VU <sup>2</sup>  Protected (NEMBA)	ZERO, breeding, LOW, foraging
Whitebacked Vulture	<i>Gyps africanus</i>	Savanna and bushveld. Uncommon resident in study area. Nests in tall trees.	VU <sup>1</sup> VU <sup>2</sup>  Protected (NEMBA)	LOW, breeding, LOW, foraging

<sup>1</sup>Status according to Barnes 2000.

<sup>2</sup>Status according to IUCN 2010. IUCN Red List of Threatened Species. Version 2010.3. ([www.iucnredlist.org](http://www.iucnredlist.org)).  
Downloaded on 8 September 2014.

#### **Appendix 4: Checklist of plant species recorded during previous botanical surveys in the study area and surrounds.**

(Species from quarter degree grid in which the site is located as well as surrounding grids in which similar vegetation is found. Species marked with a "1" were recorded in an Acocks site nearby.)

<sup>1</sup>*Alternanthera pungens*  
<sup>1</sup>*Amaranthus thunbergii*  
*Aptosimum albomarginatum* Marloth & Engl.  
<sup>1</sup>*Aptosimum marlothii*  
*Aptosimum procumbens* (Lehm.) Steud.  
<sup>1</sup>*Aptosimum spinescens*  
<sup>1</sup>*Aristida adscensionis* L.  
*Aristida congesta* Roem. & Schult. subsp. *congesta*  
<sup>1</sup>*Aristida congesta* subsp. *barbicollis*  
*Asparagus bechuanicus* Baker  
*Asparagus glaucus* Kies  
*Barleria rigida* Nees  
<sup>1</sup>*Berkheya annectens*  
*Blepharis mitrata* C.B. Clarke  
<sup>1</sup>*Brachiaria marlothii*  
*Bulbine frutescens* (L.) Willd.  
*Calobota spinescens* (Harv.) Boatwr. & B.-E. van Wyk  
<sup>1</sup>*Chamaesyce inaequilatera*  
*Chascanum pumilum* E. Mey.  
*Chloris virgata* Sw.  
*Chrysocoma ciliata* L.  
*Chrysocoma obtusata* (Thunb.) Ehr. Bayer  
<sup>1</sup>*Convolvulus sagittatus*  
*Coronopus integrifolius* (DC.) Spreng.  
*Cucumis africanus* L.f.  
*Cullen biflora* (Harv.) C.H. Stirt.  
*Cullen tomentosum* (Thunb.) J.W. Grimes  
*Cynanchum orangeanum* (Schltr.) N.E. Br.  
<sup>1</sup>*Deverra denudata* subsp. *aphylla*  
*Dicoma capensis* Less.  
*Dipcadi viride* (L.) Moench  
<sup>1</sup>*Enneapogon desvauxii* P. Beauv.  
*Enneapogon scaber* Lehm.  
<sup>1</sup>*Eragrostis annulata* Rendle ex Scott-Elliot  
*Eragrostis biflora* Hack. ex Schinz  
*Eragrostis echinochloidea* Stapf  
*Eragrostis homomalla* Nees  
*Eragrostis lehmanniana* Nees var. *lehmanniana*  
<sup>1</sup>*Eragrostis lehmanniana* var. *chaunantha*  
*Eragrostis nindensis* Ficalho & Hiern  
*Eragrostis obtusa* Munro ex Ficalho & Hiern  
*Eragrostis porosa* Nees  
<sup>1</sup>*Eragrostis procumbens* Nees  
<sup>1</sup>*Eragrostis truncata* Hack.  
*Euphorbia inaequilatera* Sond. var. *inaequilatera*  
*Galenia africana* L.  
*Gazania jurineifolia* DC. subsp. *scabra* (DC.) Roessler  
*Gazania krebsiana* Less. subsp. *arctotoides* (Less.) Roessler



Geigeria acaulis (Sch.Bip.) Benth. & Hook.f. ex Oliv. & Hiern  
 Geigeria filifolia Mattf.  
 Geigeria ornativa O.Hoffm. subsp. ornativa  
 Gisekia pharnacioides L. var. pharnacioides  
<sup>1</sup>Gnidia polycephala  
<sup>1</sup>Gomphocarpus fruticosus subsp. fruticosus  
 Helichrysum herniarioides DC.  
 Helichrysum lucilioides Less.  
<sup>1</sup>Heliotropium lineare  
 Hermannia bicolor Engl. & Dinter  
<sup>1</sup>Hermannia coccocarpa  
<sup>1</sup>Hermannia comosa Burch. ex DC.  
 Hermannia pulverata Andrews  
 Hermannia spinosa E.Mey. ex Harv.  
 Hoodia flava (N.E.Br.) Plowes  
 Hypertelis salsoloides (Burch.) Adamson var. salsoloides  
<sup>1</sup>Indigofera alternans DC. var. alternans  
 Indigofera auricoma E.Mey.  
 Jamesbrittenia tysonii (Hiern) Hilliard  
 Kedrostis africana (L.) Cogn.  
 Kohautia cynanchica DC.  
<sup>1</sup>Lessertia pauciflora Harv. var. pauciflora  
<sup>1</sup>Leucas capensis  
 Limeum aethiopicum Burm.f. var. aethiopicum  
 Limeum aethiopicum Burm.f. var. glabrum Moq.  
 Limeum aethiopicum Burm.f. var. lanceolatum Friedrich  
<sup>1</sup>Limeum aethiopicum subsp. aethiopicum var. aethiopicum  
 Limeum argute-carinatum Wawra ex Wawra & Peyr. var. argute-carinatum  
 Limeum myosotis H.Walter var. confusum Friedrich  
 Limeum myosotis H.Walter var. myosotis  
 Lophiocarpus polystachyus Turcz.  
 Lotononis platycarpa (Viv.) Pic.Serm.  
<sup>1</sup>Lycium cinereum  
 Lycium horridum Thunb.  
 Lycium schizocalyx C.H.Wright  
 Mestoklema arboriforme (Burch.) N.E.Br. ex Glen  
 Microloma incanum Decne.  
 Microloma longitubum Schltr.  
<sup>1</sup>Mollugo cerviana (L.) Ser. ex DC. var. cerviana  
<sup>1</sup>Monechma incanum (Nees) C.B.Clarke  
 Monechma spartioides (T.Anderson) C.B.Clarke  
 Nolletia gariepina (DC.) Mattf.  
<sup>1</sup>Oligomeris dipetala var. dipetala  
 Oropetium capense Stapf  
 Osteospermum rigidum Aiton var. rigidum  
<sup>1</sup>Osteospermum spinescens  
<sup>1</sup>Panicum lanipes  
 Panicum maximum Jacq.  
 Pegolettia retrofracta (Thunb.) Kies  
 Peliostomum leucorrhizum E.Mey. ex Benth.  
 Pentzia incana (Thunb.) Kuntze  
 Pentzia lanata Hutch.  
 Phymaspermum parvifolium (DC.) Benth. & Hook. ex B.D.Jacks.  
 Polygala leptophylla Burch. var. leptophylla

<sup>1</sup>*Polygala seminuda* Harv.  
*Prosopis velutina* Wooton EXOTIC  
*Rhigozum trichotomum* Burch.  
<sup>1</sup>*Rosenia humilis* (Less.) K.Bremer  
*Salsola calluna* Fenzl ex C.H.Wright  
*Salsola kalaharica* Botsch.  
<sup>1</sup>*Salvia verbenaca* L.  
*Schoenoplectus leucanthus* (Boeck.) J.Raynal  
*Senecio niveus* (Thunb.) Willd.  
*Sericocoma avolans* Fenzl  
*Sesamum capense* Burm.f.  
*Setaria verticillata* (L.) P.Beauv.  
*Sisymbrium burchellii* DC. var. *burchellii*  
*Solanum namaquense* Dammer  
<sup>1</sup>*Sporobolus ioclados*  
*Sporobolus nervosus* Hochst.  
*Stipagrostis anomala* De Winter  
*Stipagrostis ciliata* (Desf.) De Winter var. *capensis* (Trin. & Rupr.) De Winter  
*Stipagrostis namaquensis* (Nees) De Winter  
<sup>1</sup>*Stipagrostis obtusa* (Delille) Nees  
*Sutherlandia frutescens* (L.) R.Br.  
*Syringodea concolor* (Baker) M.P.de Vos  
*Tetragonia arbuscula* Fenzl  
*Tetragonia calycina* Fenzl  
<sup>1</sup>*Thesium hystrix*  
*Thesium lineatum* L.f.  
*Tortula atrovirens* (Sm.) Lindb.  
*Trachyandra karrooica* Oberm.  
*Tragus berteronianus* Schult.  
<sup>1</sup>*Tragus racemosus* (L.) All.  
*Tribulus terrestris* L.  
<sup>1</sup>*Tribulus zeyheri* subsp. *zeyheri*  
*Ursinia nana* DC. subsp. *nana*  
*Wiborgia monoptera* E.Mey.  
*Xerocladia viridiramis* (Burch.) Taub.  
<sup>1</sup>*Zygophyllum flexuosum*  
*Zygophyllum lichtensteinianum* Cham. & Schltld.  
<sup>1</sup>*Zygophyllum microcarpum*

## **Appendix 5: Flora and vertebrate animal species protected under the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)**

(as updated in R. 1187, 14 December 2007)

### **CRITICALLY ENDANGERED SPECIES**

#### **Flora**

Adenium swazicum  
Aloe pillansii  
Diaphanthe millarii  
Dioscorea ebutsniorum  
Encephalartos aemulans  
Encephalartos brevifoliolatus  
Encephalartos cerinus  
Encephalartos dolomiticus  
Encephalartos heenanii  
Encephalartos hirsutus  
Encephalartos inopinus  
Encephalartos latifrons  
Encephalartos middelburgensis  
Encephalartos nubimontanus  
Encephalartos woodii

#### **Reptilia**

Loggerhead sea turtle  
Leatherback sea turtle  
Hawksbill sea turtle

#### **Aves**

Wattled crane  
Blue swallow  
Egyptian vulture  
Cape parrot

#### **Mammalia**

Riverine rabbit  
Rough-haired golden mole

### **ENDANGERED SPECIES**

#### **Flora**

Angraecum africae  
Encephalartos arenarius  
Encephalartos cupidus  
Encephalartos horridus  
Encephalartos laevifolius  
Encephalartos lebomboensis  
Encephalartos msinganus  
Jubaeopsis caffra  
Siphonochilus aethiopicus  
Warburgia salutaris  
Newtonia hilderbrandi

#### **Reptilia**

Green turtle  
Giant girdled lizard  
Olive ridley turtle  
Geometric tortoise

#### **Aves**

Blue crane  
Grey crowned crane  
Saddle-billed stork  
Bearded vulture  
White-backed vulture  
Cape vulture  
Hooded vulture  
Pink-backed pelican  
**Pel's fishing owl**  
Lappet-faced vulture

#### **Mammalia**

Robust golden mole  
Tsessebe  
Black rhinoceros  
Mountain zebra  
African wild dog  
**Gunning's golden mole**  
Oribi  
Red squirrel  
Four-toed elephant-shrew

### **VULNERABLE SPECIES**

#### **Flora**

Aloe albida  
Encephalartos cycadifolius  
Encephalartos Eugene-maraisii  
Encephalartos ngovanus  
Merwillia plumbea  
Zantedeschia jucunda

#### **Aves**

White-headed vulture  
Tawny eagle  
Kori bustard  
Black stork  
Southern banded snake eagle  
Blue korhaan  
Taita falcon  
Lesser kestrel  
Peregrine falcon  
Bald ibis

**Ludwig's bustard**

Martial eagle  
 Bataleur  
 Grass owl

**Mammalia**

Cheetah  
 Samango monkey  
 Giant golden mole  
 Giant rat  
 Bontebok  
 Tree hyrax  
 Roan antelope  
 Pangolin

**Juliana's golden mole**

Suni  
 Large-eared free-tailed bat  
 Lion  
 Leopard  
 Blue duiker

**PROTECTED SPECIES****Flora**

Adenia wilmsii  
 Aloe simii  
 Clivia mirabilis  
 Disa macrostachya  
 Disa nubigena  
 Disa physodes  
 Disa procera  
 Disa sabulosa  
 Encephelartos altensteinii  
 Encephelartos caffer  
 Encephelartos dyerianus  
 Encephelartos frederici-guilielmi  
 Encephelartos ghellinckii  
 Encephelartos humilis  
 Encephelartos lanatus  
 Encephelartos lehmannii  
 Encephelartos longifolius  
 Encephelartos natalensis  
 Encephelartos paucidentatus  
 Encephelartos princeps  
 Encephelartos senticosus  
 Encephelartos transvenosus  
 Encephelartos trispinosus  
 Encephelartos umbeluziensis  
 Encephelartos villosus  
 Euphorbia clivicola  
 Euphorbia meloformis  
 Euphorbia obesa  
 Harpagophytum procumbens

Harpagophytum zeyherii  
 Hoodia gordonii  
 Hoodia currorii  
 Protea odorata  
 Stangeria eriopus

**Amphibia**

Giant bullfrog  
 African bullfrog

**Reptilia**

Gaboon adder  
 Namaqua dwarf adder  
**Smith's** dwarf chameleon  
 Armadillo girdled lizard  
 Nile crocodile  
 African rock python

**Aves**

Southern ground hornbill  
 African marsh harrier  
**Denham's bustard**  
 Jackass penguin

**Mammalia**

Cape clawless otter  
 South African hedgehog  
 White rhinoceros  
 Black wildebeest  
 Spotted hyaena  
 Black-footed cat  
 Brown hyaena  
 Serval  
 African elephant  
 Spotted-necked otter  
 Honey badger  
**Sharpe's grysbok**  
 Reedbuck  
 Cape fox