ENVIRONMENTAL ASSESSMENT

FOR THE SILVERLANDS AGRICULTURAL PROJECT IN AUSSENKEHR, NAMIBIA

SCOPING REPORT

Assessed by:

Assessed for:

Silverlands Vineyards (Pty) Ltd

July 2016

Project:	**ENVIRONMENTAL ASSESSMENT SCOPING REPORT FOR THE SILVERLANDS AGRICULTURAL PROJECT, AUSSENKEHR, NAMIBIA**	
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I, Kevin Liddle acting as Silverlands Vineyards (Pty) Ltd representative, hereby confirm that the project description contained in this report is, to the best of my knowledge, a true reflection of the information which Silverlands Vineyards (Pty) Ltd has provided to Geo Pollution Technologies.

Signed at Aussenkehr on the 29th day of June, 2016.

Silverlands Vineyards (Pty) Ltd

Geo Pollution Technologies (Pty) Ltd

EXECUTIVE SUMMARY

Silverlands Vineyards (Pty) Ltd, an internationally funded company, has invested in the Namibian table grape industry which is concentrated in Aussenkehr within the Karas Region. Apart from investing in the existing 480 ha of operations, the company is further proposing vineyard development of another 1000 ha around the existing vineyards. Such an expansion will require various upgrades of the existing facilities and infrastructure.

As per the Namibian Environmental Management Act No. 7 of 2007, the company is required to apply for an Environmental Clearance Certificate to conduct its operations and planned expansion. In support of such an application, an Environmental Assessment is required to be conducted from which an Environmental Management Plan may be developed. Furthermore, as the company is reliant on international funding, and in terms of their Responsible Investment Code, the International Finance Corporation's (IFC) principles are applicable. Provisions within the IFC allow for performing an Environmental and Social Impact Assessment for such planned operations.

This Scoping Report has been compiled as part of the Environmental Assessment process being conducted to for-fill both of the requirements as mentioned above. This report outlines the environmental baseline conditions and identified impacts which will be investigated and assessed during the impact assessment to be documented in a Detailed Assessment Report.

As per the findings of the Scoping Process, the Aussenkehr area is faced with various environmental challenges which include extreme climatic conditions and fundamental community challenges. In addition, the project area borders the international Orange River, from which the project sources its water. Definite concerns and issues have been raised regarding the water use of the river as well as the quality of the water in relation to cumulative water uses upstream.

To fully address of the possible significant issues which have been identified, as well as to identify any additional concerns, the general public has been informed about the Environmental Assessment being conducted and have been invited to provide comments and concerns. Various governmental agencies as well as international organisations have been included in the stakeholder distribution list. Several oral comments and concerns have been recorded most of which are in support of the project. The main concerns are the following:

- Electricity constraints in Aussenkehr;
- Land tenure;
- Workers housing;
- Employment requirements (Namibian); and
- Dust emissions.

All of the parties as mentioned above were given an opportunity to provide comment on the scoping report. Any comments or concerns received will be incorporated into the impact assessment which will be documented in the Detailed Assessment Report. Furthermore, specialist studies have been identified to provide expert opinion on some of the issues identified. These include Social, Archaeological / Heritage, Hydrogeological and Ecological. A brief reference of their scope has been provided in this report.

All of the issues to be assessed have been framed within a legal framework of national and international legislation, policies, treaties and conventions. Existing water rights have been confirmed for the planned and proposed operations while permits and requirements regarding waste recycling and disposal are being investigated.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CBD	Convention on Biological Diversity
CITES	Convention on International Trade of Endangered Species
DA	Detailed Assessment
EA	Environmental Assessment
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management System
GPT	Geo Pollution Technologies (Pty) Ltd
H&S	Health and Safety
HIV	Human Immunodeficiency Virus
IAPs	Interested and Affected Parties
IFC	International Finance Corporation
IUCN	International Union for Conservation of Nature
m/s	Meter per second
MAWF	Ministry of Agriculture, Water and Forestry
mbs	Meters below surface
MET	Ministry of Environment and Tourism
mm/a	Millimetres per annum
MSDS	Material Safety Data Sheet
PPE	Personal Protective Equipment
PPPPs	Projects, Plans, Programmes and Policies
RIC	Responsible Investment Code
SVL	Silverlands Vineyards (Pty) Ltd
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization
VIP	Ventilated Improved Pit Latrine

GLOSSARY OF TERMS

Alternatives - A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The "no-go" alternative constitutes the 'without project' option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.

Assessment - The process of collecting, organising, analysing, interpreting and communicating information relevant to decision making.

Competent Authority - means a body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.

Cumulative Impacts - in relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Environment - As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values".

Environmental Assessment (EA) - process of assessment of the effects of a development on the environment.

Environmental Impact Assessment (EIA) - process of assessment of the effects of a development on the environment.

Environmental Management Plan (EMP) - A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.

Environmental Management System (EMS) - An Environment Management System, or EMS, is a comprehensive approach to managing environmental issues, integrating environment-oriented thinking into every aspect of business management. An EMS ensures environmental considerations are a priority, along with other concerns such as costs, product quality, investments, PR productivity and strategic planning. An EMS generally makes a positive impact on a company's bottom line. It increases efficiency and focuses on customer needs and marketplace conditions, improving both the company's financial and environmental performance. By using an EMS to convert environmental problems into commercial opportunities, companies usually become more competitive.

Evaluation – means the process of ascertaining the relative importance or significance of information, the light of people's values, preference and judgements in order to make a decision.

Hazard - Anything that has the potential to cause damage to life, property and/or the environment. The hazard of a particular material or installation is constant; that is, it would present the same hazard wherever it was present.

Interested and Affected Party (IAP) - any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

Mitigate - The implementation of practical measures to reduce adverse impacts.

Proponent (Applicant) - Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.

Public - Citizens who have diverse cultural, educational, political and socio-economic

characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.

Scoping Process - process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.

Significant Effect/Impact - means an impact that by its magnitude, duration, intensity or probability of occurrence may have a notable effect on one or more aspects of the environment

Stakeholder Engagement (Public Consultation Process) - The process of engagement between stakeholders (the proponent, authorities and IAPs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term "public participation".

Stakeholders - A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (IAPs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Sustainable Development - "Development that meets the needs of the current generation without compromising the ability of future generations to meet their own needs and aspirations" – the definition of the World Commission on Environment and Development (1987). "Improving the quality of human life while living within the carrying capacity of supporting ecosystems" – the definition given in a publication called "Caring for the Earth: A Strategy for Sustainable Living" by the International Union for Conservation of Nature (IUCN), the United Nations Environment Programme and the World Wide Fund for Nature (1991).

1 BACKGROUND

1.1 Introduction

Silverlands Vineyards (Pty) Ltd ("Silverlands") and its partners (together referred to as "Silverlands") are jointly applying for an Environmental Clearance Certificate ("ECC") for existing and proposed agricultural operations in Aussenkehr, Namibia. Silverlands recently invested into the table grape sector in Aussenkehr by taking over various portions of existing vineyards and acquiring adjacent properties for the expansion of these vineyards as indicated in Figure 1.

An ECC for the current and planned agricultural operations is required as per the Environmental Management Act No. 7 of 2007 ("EMA"). As such, a Scoping Environmental Assessment Report and an Environmental Management Plan ("EMP") is proposed to be submitted to the Ministry of Environment and Tourism ("MET"). Thereafter, a Detailed Assessment ("DA") (inclusive of specialist input and an updated EMP) will be submitted in support of an application for an ECC. The entire assessment (both Scoping Report and Detailed Assessment) will be referred to as an EA. Silverlands has committed to operate their farms in line with Namibian law as well as their Responsible Investment Code ("RIC"). The RIC ties Silverlands to the International Finance Corporation ("IFC") Performance Standards. Therefore the ECC application will be conducted according to the IFC Performance Standards for the existing 480 ha of vineyards and the proposed expansion of 1,000 ha on which a combination of vineyards and vegetables/seed vegetables may be produced.

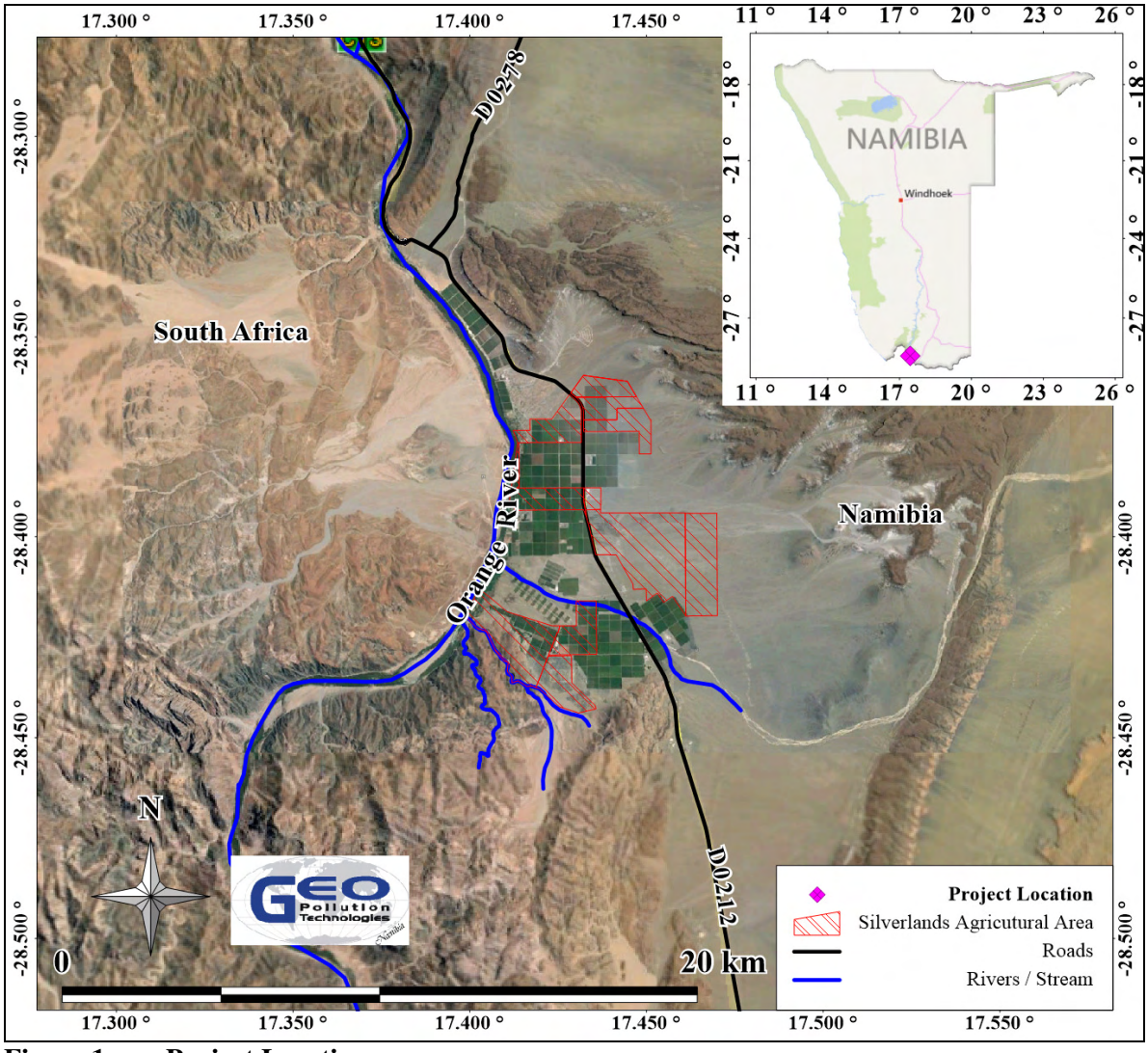


Figure 1. Project Location

1.2 Project Motivation /Need and Desirability

Over the past 30 years, Aussenkehr has developed and been established in the international table grape sector, exponentially. The production of grapes followed the farms initial focus on vegetable production which dates back as early as the 19th century. The unique climate, being very hot with little to no rain, proved to be an exceptional environment for table grape production. The first vineyards were planted by the owner of the greater Aussenkjer 147 Farm, Mr Dusan Vasiljevic. Thereafter, various portions of the valley had been sold to a variety of developers which included state and private ventures. As the vineyards expanded locally, so did the market for Namibian table grapes, resulting in numerous European and international retail franchises securing supplies for their clients. With a large portion of the valley developed, Silverlands has taken the opportunity to establish vineyards on derelict areas through means of international funding. The most efficient method being expansion of current operations and therefore these areas have been acquired. The proposed project is estimated to boost current exports (of table grapes), from an estimated 9000 tons per year to up to 27,000 tons once in full production. A significant contribution to Namibia's export market, the sector will contribute to total exports etc. The project falls in line with the National Development Goals of Namibia which is an echo of the country's first speech of independence by the then President Sam Nujoma, citing the growth of the agricultural sector to be the first and foremost development goal.

In addition to the revenue which will be generated, the table grape sector is a labour intensive industry and up to 10,000 jobs will be created.

2 SCOPE

The purpose of this scoping assessment is to identify the impact and potential impacts the agricultural project will have on the environment. Once determined, possible enhancement measures will be listed for those positive impacts while mitigation measures will be provided for negative impacts in the Detailed Assessment to follow. As per the findings of this Scoping Report a Draft Environmental Management Plan (EMP) was compiled and will be submitted with the Scoping Report to the Directorate of Environmental Affairs (DEA) of the Ministry of the Environment and Tourism (MET) who are the custodians of the EMA. These documents have been compiled in accordance to the requirements of the EMA and its regulations as to afford the DEA an objective view of expected impacts on the environment. The assessment has further been conducted to also satisfy IFC requirements which categorizes the project as a Category B project (more detail regarding the categorization and requirements are listed in the legal section of this report). Diagram 1 provides a brief outline of the requirements of a Scoping Report and draft Environmental Management Plan (EMP).

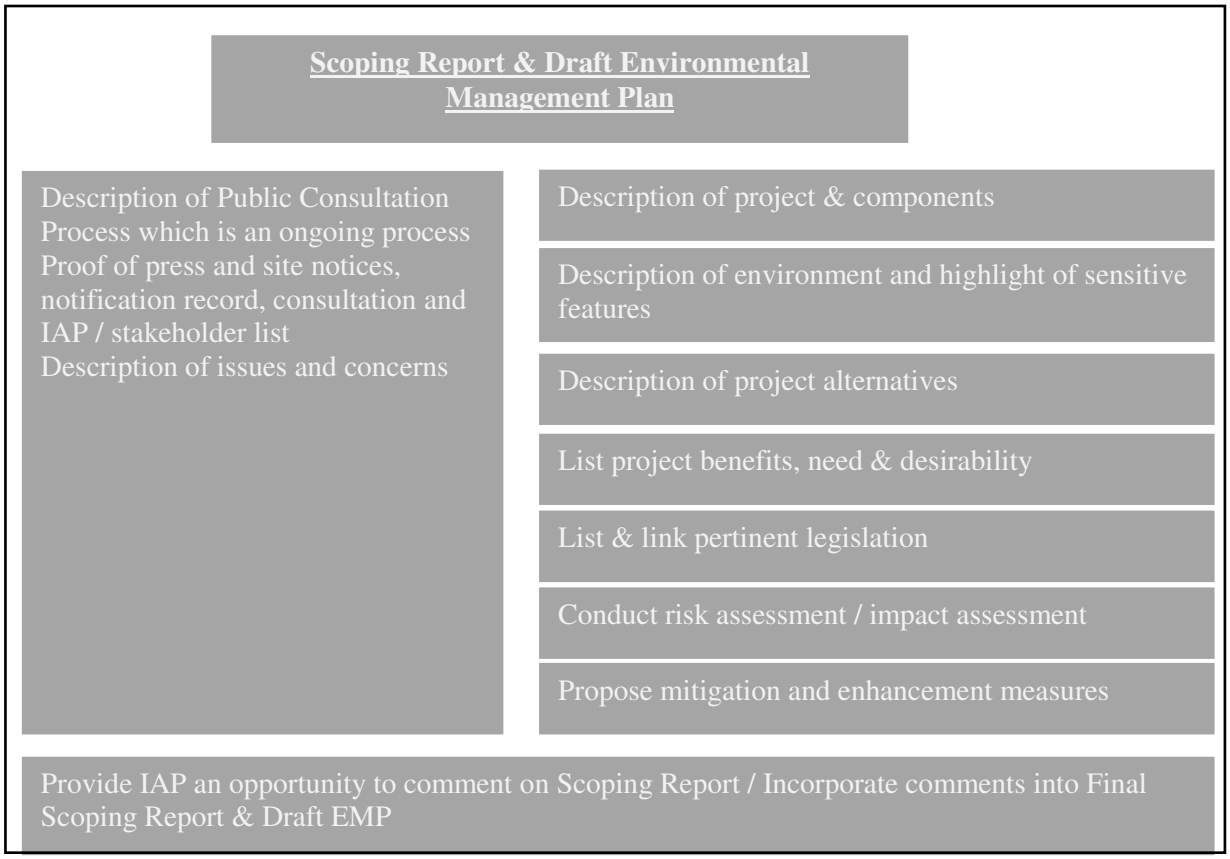


Diagram 1. Scoping Report and Draft Environmental Management Plan Requirements

Should the DEA find that the Scoping Report and plan of study (terms of reference) for the Detailed Assessment as proposed in this report, are acceptable, permission will be granted to continue with the Detailed Assessment which will include specialist studies for the area in relation to the project. Once completed, the Detailed Assessment will be submitted to the DEA. Should the mitigation measures and potential impacts as assessed in the Detailed Assessment be deemed acceptable to promote sustainable development, an ECC may be awarded. The ECC may refer to the EMP, and the conditions therein, thus rendering the EMP a legally binding document to which the proponent must adhere to. To be noted is that the Environmental Assessment's aim is not to stop the agricultural project, or any of its components, but to rather guide sustainable and responsible development as per the spirit of the EMA. Project components which present unacceptable or very high impact ratings will be highlighted and alternatives provided. No fatal flaw has been identified during the screening phase / feasibility assessment of the project prior to this report.

3 METHODOLOGY

The scoping process involves an integration of various information streams weaving into a description of the environment and the project. Initially project activities and components were obtained from the proponent, Silverlands. These have changed to a certain degree as the project continued to develop. Changes refer to the locality of the site, its expansion, and waste disposal. All of which are documented and considered as alternatives within the project as per Section 5 of this report. Information regarding the environment was mainly derived though desk top review of relevant related documentation, site visits and stakeholder engagement.

3.1 Desk-top Review

Information regarding the biophysical environment was sourced from the Atlas of Namibia and augmented by various documents for the Orange River catchment. These include, but are not limited to the following:

- Mapping the Major Catchments of Namibia; and
- ORASECOM: Orange-Senqu Basin Integrated Water Resources Management Plan – 2014 and related specialist reports.

Please refer to the document reference list for sources of information consulted as per Section 13 of this report.

3.2 Site Visit

Various site visits confirmed the terrain, biophysical and social characteristics of the area. Site visits were conducted during and after the harvesting season while photographs taken document main features of investigation, interest and concern. Site visits were conducted on the proposed expansion areas as well as at current operations / vineyards. Finally, site visits were conducted to include the area as a whole from a community perspective.

3.3 Stakeholder Engagement

Stakeholder engagement through the public consultation process, as described in Section 8 of this report, resulted in not only information about the local community and its economic activities, but also provided insightful concerns regarding potential impacts on the environment. Comments and concerns as obtained through discussions, written submissions and stakeholder meetings provided a community perspective towards the agricultural project and related initiatives as well as generate information regarding the current and future surrounding land use.

Once all the information had been gathered, a matrix of impact identification was established as per Section 9 of this report. All of the information generated and considered were cross referenced with pertinent national and international legislation discussed in the next section of this report.

4 PROJECT DESCRIPTION

It is important to understand the table grape sector to be able to understand the project description. The production and retail of table grapes is an integral process which is not only reliant on extensive planning, but also on the concise execution of daily activities associated with cultivation. Administration of pesticides and herbicides, pruning, irrigation and drainage require hands-on management as one simple mistake may jeopardize an entire harvest.

4.1 Life Cycle / Understanding the Table Grape Industry

Vines are sourced from around the world and then imported via truck to Aussenkehr from here they are immediately planted into prepared vineyards. Prepared vineyards comprise a support structure, known as trellising for each vine which is placed in a grid set-up within an irrigation network. Irrigation networks vary from either being over-hanging or bottom-spraying for each vine. The "grid" set-up comprise overhanging wires, anchored at each end, onto which each vine will be able to grow.

Once established the vines may take up to 4 years before maturity is reached and a full harvest may be expected. During this time a number of activities including irrigation, pruning, training, etc. The vines are irrigated daily with a weekly average of 40-50 mm during the winter season (April to July) and an average of 70-80mm per week for the rest of the year. Developing vines receive less water than fully grown vines.

From initial establishment, the vines are subject to a pesticide and herbicide regime for protection. These are managed continually and activities vary based on the growing cycle of the vine. The regime further varies each year according to the most prevalent pests for that year. During harvest time grapes are cut from the vine, transported into cool storage areas where it is packed for transport and retail purposes.

The vines, now void of any fruit are pruned at some point after the harvesting season after which the resting period of the vine is entered into.

Photo 1. Bottom-spraying Irrigation

Photo 2. Typical Construction of Drainage system

The greatest part of the project will focus on the production of table grapes however alternative crops such as vegetables (e.g. tomatoes and onions), seed crops and dates may also be grown.

Activities associated with the project have therefore been divided into four phases namely the planning-, development-, operational- and decommissioning phases. A brief outline of expected activities for each phase is detailed below. The project is divided into two overlapping and integrated operations. Existing Operations and the expansion area, Planned Operations.

4.2 Planning Phase

As there are some existing operations which would be regarded as beyond the planning phase, the proposed planned expansion will tie in with existing operations and therefore the planning phase incorporates existing operations. It entails not only overall operational planning but also amenities and permit acquisition while also including setting up of various agreements between contractors, suppliers, state departments and adjacent land owners. Some of the agreements which may be considered are provided as examples below:

- Land use rights,
- Operating agreements with adjacent companies (Namibian Grape Company) regarding water and power supply,
- NamPower negotiations,
- Water rights and permits,
- Setting labour contracts (including tender documentation for contractors), and
- Obtaining an ECC (as per this process) and other permits as required.

4.3 Development Phase

The development phase (also traditionally known as the construction phase for infrastructure related projects) will begin with land preparation and earth works as well as fencing the expansion area. This phase will mainly pertain to what is referred to as the expansion area (planned operations). The development phase will entail the following:

- A temporary construction camp for building component requirements,
- Upgrading and development of access and vineyard roads,
- Site office and storage facilities pack houses,

- Construction of up to 20 managerial residential units,
- Ablution facilities and associated septic tanks,
- Land preparation for cultivation (clearing, soil analysis and modification, subsoiling, tillage, weed control, soil drainage, cover crops and wind breaks)
- Infrastructure establishment (water pipelines, electrical power supply, etc.)

4.4 Operational Phase

The operational phase refers to the actual planting, growing and harvesting of the agricultural produce of choice (which may include table grapes, vegetables and dates although the most preferred would be grapes). Growing and harvesting will be repeated annually and in a broad sense include the following activities:

- Planting of chosen crop (up to 1,480 Ha in total)
- Fertilisation and irrigation,
- Weed and pest control,
- Nutrient and soil management,
- Irrigation
- Vine maintenance (e.g. pruning, green berry preparation)
- Harvesting, storage and packing of produce, and
- Maintenance of support infrastructure and machines.

4.5 Decommissioning Phase

Should Silverlands decide to terminate their involvement in the area, or abandoning a vineyard, a decommissioning phase may be initiated. All supporting infrastructure – such as water pipelines, electricity supply lines, access and vineyards roads etc., will have to be removed and or rehabilitated to a state either useable for an alternative agricultural project or as close as possible to its original state. Silverlands would therefore be liable for the rehabilitation of all operations taken over and expanded upon. Rehabilitation should further be conducted for any component of the project, which may, during the life of the project, become redundant or be decommissioned. An example would be any residential units or workshop areas. Alternatively, should Silverlands sell any part of the agricultural project, all closure and rehabilitation liabilities should be stipulated and made to be part of the take-over agreement.

4.6 General Additional Project Components and Amenities

In order to support the agricultural project, a variety of amenities are required. These include components such as general infrastructure, power- and water supply as well as sanitation, workshops etc. Table 1 below provides a summary of the most pertinent additional project components.

Table 1. General Additional Project Components and Amenities

Project Component	Primary Provision	Secondary / Additional Provision
Electricity Provision	NamPower: Existing power supply and of approximately 3,500 kVA for current operations	Solar Plant: Future power supply of up to 600kVA (first phase 200kVa) for current and future operations
Water Provision	Surface Water Abstraction: as per existing	Additional use for proposed

Project Component	Primary Provision	Secondary / Additional Provision
	water rights	expansion area
Water Storage	3 small storage dams with sufficient water for a day's supply to the vineyards.	No additional storage will be required
Pack Houses /Cool Stores & General Storage	Three existing store houses catering for current operations	Planned expansion to the existing pack houses to cater for increased production
Sanitation	Current VIP systems catering for existing staff compliment in Vineyards	Planned for additional operated areas.
Residential Units	5 Current housing units	20 Planned residential units for additional staff compliment
Fuel Storage Area	One 30 m^3 litre diesel tank for current operations.	1 Additional tank of m^3
Workshops & Maintenance Yards	Two workshops to cater for current operational areas	One additional workshop required
Construction Yard	Two construction yards for construction of anchor blocks and general maintenance / construction / painting etc.	No addition required
Chemical Storage Area	Two chemical storage areas are used for current operations	No additional required
Office Complex	Three office complexes (one main and two secondary)	No additional required
Land-fill	2 Existing landfill sites	

Photo 3. Typical VIP Toilet Amongst Vineyards

Photo 4. Typical Store- and Pack House Complex

Photo 5. Dam Pump House

Photo 6. Operational Landfill

5 ALTERNATIVES

There are a number of alternatives which have been considered for the expansion areas, however, existing operations have limited scope for alternative considerations. Current operations have been designed to adhere to international health, safety and environmental requirements and therefore good practise has already been implemented. The most pertinent alternatives pertain to the provision of power and transmission thereof, as well as the water abstraction point and water sharing. Finally the alternative disposal of all types of waste streams will be considered in the Detailed Assessment which will provide an analysis of the advantages vs the disadvantages of the various options.

6 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans and programmes deemed to have adverse impacts on the environment require an ECC, as per the Namibian legislation. Based on the project description as approved by the proponent, listed activities, as per the EMA Government Notice No. 29 of Government Gazette No. 4878 have been identified which requires the project to apply for and ECC, these have been tabled in Table 2:

Table 2. Applicable EMA Listed Activities

Activity No	Activity	Applicability
8.1	The abstraction of ground or surface water for industrial or commercial use.	Water is abstracted from the Orange River for current operations and greater volumes will be required for expansion.
8.3	Any abstraction from a river that form an international boundary, and	Water is abstracted from the Orange River, which forms an international boundary with South Africa.
8.7	*Irrigation schemes for agriculture excluding domestic irrigation.*	Current operations have established irrigation schemes while proposed operations will expand such schemes.

Additional pertinent legislation sets, including the IFC Performance Standards and Policies which have informed the EA are listed in Table 3. Reference is made regarding its applicability to this report and agricultural project. IFC requires adherence to al National legislation in terms of environmental permitting and therefore above legislation has been identified as the pertinent requirements while being augmented by IFC requirements. In terms of IFC, the project is classified as a Category B

project (The International Finance Corporation, 1998) which call for an EA which is less rigorous than that of a Category A project (which allows for irreversible environmental degradation / impacts). However IFC requires that the most stringent legislation be implemented in areas where national requirements overlap with IFC guidelines. Therefore a Scoping and Detailed Assessment will be conducted. In terms of IFC, additional consideration for this project is needed in terms of the following:

- Sustainable use of natural resources (use of soil and water to produce harvests);
- Use of dangerous substances (possible hazardous material in pesticides and herbicides as well as hydrocarbons etc);
- Fire prevention and life safety (during packaging and pruning etc);
- Land acquisition and land use (confirmation of land acquisition);
- Cumulative impacts of existing projects, the proposed project and anticipated future projects (existing vineyards and proposed expansion of other companies / operators);
- Consideration of environmentally and socially preferred alternatives (location, drainage and labour requirements);
- Pollution prevention and waste minimization (construction, operation and maintenance waste).

The legal matric of the project not only promotes sustainable development, but does so within the consideration of local, regional and national planning and development initiatives. It further serves to ensure the health and safety of the community and workers as various legal constraints were brought into the draft EMP.

Table 3. Additional Pertinent Legislation

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
National Legislation			
The Namibian Constitution	♦ Promote the welfare of people ♦ Incorporates a high level of environmental protection ♦ Incorporates international agreements as part of Namibian law	All proposed developments should aim at promoting the welfare of all people in a sustainable manner.	Principles of sustainable development and protection of the environment are enshrined in the objectives and goals of impact minimisation for adverse impacts. To be included in the mitigation measures to be considered in the Detailed Assessment.
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	♦ Defines the environment ♦ Promote sustainable management of the environment and the use of natural resources ♦ Provide a process of assessment and control of activities with possible significant effects on the environment	The project falls with the ambit of the EMA regulations which require an application for an ECC.	The project has been registered with the DEA and the ESIA will be submitted in support to an ECC application.
Soil Conservation Act (Act No. 76 of 1969)	♦ Law relating to the combating and prevention of soil erosion, the conservation, improvement and manner of use of the soil and vegetation and the protection of the water sources of Namibia	Infrastructure (drainage and irrigation) development of the project will impact on the soils and further pose risks to soil contamination all phases.	Principles of soil conservation and pollution prevention have been included the EMP which will be submitted in support of an ECC.
Petroleum Products and Energy Act Act No. 13 of 1990, Government Notice No. 45 of 1990	♦ Regulates petroleum industry ♦ Makes provision for impact assessment ♦ Petroleum Products Regulations (Government Notice No. 155 of 2000) ♦ Prescribes South African National Standards (SANS) or equivalents for construction, operation and decommissioning of petroleum facilities (refer to Government Notice No. 21 of 2002)	The project has some fuel storage on site which will amount to less than $5m^3$.	Mitigation measures to prevent fuel spills and contamination has been included in the EMP which will be submitted in support of an ECC.
The Water Act Act No. 54 of 1956	♦ Remains in force until the new Water Resources Management Act comes into force ♦ Defines the interests of the state in protecting	Water is used and will be used in the future. All water will be obtained as per existing water rights and water abstraction permits	Mitigation measures relating to water contamination are described in the EMP.

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
	water resources ♦ Controls the disposal of effluent ♦ Numerous amendments		
Water Resources Management Act **Act No. 11 of 2013**	♦ Provide for management, protection, development, use and conservation of water resources ♦ Prevention of water pollution and assignment of liability ♦ Not in force yet	Water is and will be used. Drainage water flows back into the Orange River. No water will directly be sourced from underground.	Mitigation measures relating to water contamination are described in the EMP for the construction and operational phases.
Local Authorities Act **Act No. 23 of 1992, Government Notice No. 116 of 1992**	♦ Define the powers, duties and functions of local authority councils ♦ Regulates discharges into sewers	EMA requires public participation inclusive of NGO's, local and regional government and IAP	Local and reginal offices have been invited to participate in the application process. Consultation with local and regional councils have been conducted
Public Health Act **Act No. 36 of 1919**	♦ Provides for the protection of health of all people	The project may have health impacts on labourers and surrounding communities during all phases	Health and safety measures have been incorporated into the EMP of the project as well will be discussed in Detailed Assessment.
Labour Act **Act No 11 of 2007, Government Notice No. 236 of 2007**	♦ Provides for Labour Law and the protection and safety of employees ♦ Labour Act, 1992: Regulations relating to the health and safety of employees at work (Government Notice No. 156 of 1997)	The project will require labour during all phases.	Measures to ensure that the requirements of the labour act are met have been included in the EMP.
Road Traffic and Transport Act **Act No. 52 of 1999 Government Notice No 282 of 1999**	♦ Provides for the control of traffic on public roads and the regulations pertaining to road transport	♦ Roadworthiness of all vehicles ♦ Fitness for drivers ♦ Loads on vehicles ♦ Transportation of dangerous good ♦ Road traffic signs ♦ All vehicles to adhere to the provisions of the act	As part of H&S mitigation measures in the EMP Road traffic signs to be erected for operations.

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
National Heritage Act **Act No. 27 of 2004, Government Notice No. 287 of 2004**	♦ Provides for protection and conservation of places and objects of heritage significance and the registration of such places and objects.	Although no sensitive archaeological or heritage features have been identified in the area, such artefacts may be discovered during excavation activities.	Chance find procedures of possible heritage / archaeological finds have been included as a condition to be conducted in the EMP. Heritage Assessment to be conducted as part of Detailed Assessment
Hazardous Substances Ordinance **Ordinance No. 14 of 1974**	♦ Applies to the manufacture, sale, use, disposal and dumping of hazardous substances as well as their import and export. ♦ Aims to prevent hazardous substances from causing injury, ill-health or the death of human beings	Various hazardous substances will be used during all phases of the project.	Handling, storage and disposal of such substances have been identified as per specific impacts as per the Scoping Report and EMP which details management measures for hazardous substances throughout the project.
Atmospheric Pollution Prevention Ordinance **Ordinance No. 11 of 1976**	♦ Governs the control of noxious or offensive gases ♦ Prohibits scheduled process without a registration certificate in a controlled area ♦ Requires best practical means for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process	Emissions of operational vehicles and from the application of herbisides and pesticides.	Refer to the Legal section of the Scoping Report which indicates the listed activity
Pollution Control and Waste Management Bill (draft document)	♦ Not in force yet ♦ Provides for prevention and control of pollution and waste ♦ Provides for procedures to be followed for licence applications	Various waste streams will be generated during all phases. These include possible chemical and physical pollution.	Waste manage measures have been highlighted in the Scoping Report and management measures have been included in the EMP.
Protected Areas and Wildlife Management Bill (guideline only)	♦ replace the Nature Conservation Ordinance 4 of 1975 ♦ Recognizes biological diversity must be maintained, and where necessary, rehabilitated and that essential ecological processes and life support systems be maintained. It protects all indigenous species and control the exploitation of all plants and wildlife.	There are protected areas in the area around the site.	Protected areas have been indicated in the Scoping Report

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
International Law			
Stockholm Declaration on the Human Environment, Stockholm 1972.	♦ Recognizes the need for a common outlook and common principles to inspire and guide the people of the world in the preservation and enhancement of the human environment.	The project will fall within an area which has been planned to be developed for agriculture. Dedicated area for housing has further been earmarked by the local and regional government for staff.	The development will be located in the appropriate agricultural zoning
United Nations Framework Convention on Climate Change (UNFCCC)	♦ The Convention recognises that developing countries should be accorded appropriate assistance to enable them to fulfil the terms of the Convention.	Emissions may be released during all phases of the project.	No emissions are planned to fall outside of the World Health Standards. Should such parameters be exceeded all necessary steps are to be taken to reduce emissions
Convention on Biological Diversity, Rio de Janeiro, 1992	♦ Under article 14 of The Convention, EIAs must be conducted for projects that may negatively affect biological diversity.	The project will contribute to the definite impact on the biological diversity of the area (which is already being impacted on by all of the operators in the valley)	Aspects of the biodiversity has been included in the Scoping Report and EMP and a specialist study will be conducted as per the Detailed Assessment.
United Nations Convention to Combat Desertification (UNCCD)	♦ Aims at land management and combating desertification/land degradation to contribute to the conservation and sustainable use of biodiversity and the mitigation of climate change	Infrastructure development (drainage) and operations (irrigation) of the project will impact on the soils and further pose risks to soil contamination during all phases.	Principles of soil conservation and pollution prevention have been included the EMP which will be submitted in support of an ECC.
IFC Performance Standards	♦ Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts	The development requires that an Environmental Assessment be conducted which will consider the environmental and social impacts.	This Scoping Report has been conducted to consider the environmental and social impacts and will feed in to the Detailed Assessment.
	♦ Performance Standard 2: Labour and Working Conditions	Consideration should be given to international labour requirements should national requirements be lacking or less stringent that international requirements.	The EMP have listed conditions which refer to the Labour Act which are required to be adhered to should and ECC be grated.
	♦ Performance Standard 3: Resource Efficiency and Pollution Prevention	Measures to prevent pollution and increase resource efficiency are to be incorporated into the projects. The company are in the process of	Mitigation measures will be included in the Detailed Assessment as well as the EMP.

Legislation / Policy	Summary	Applicability to Assessment	Included in Report
		implementing an EMS	
	♦ Performance Standard 4: Community Health, Safety, and Security	Projects are to include elements which will address impacts that may affect the community health, safety and security.	Mitigation measures will be included in the Detailed Assessment and EMP.
	♦ Performance Standard 5: Land Acquisition and Involuntary Resettlement	Not applicable to the assessment as no resettlement will be required.	Not applicable to the assessment.
	♦ Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	The project will affect biodiversity and ecosystems.	Mitigation measures will be included in the Detailed Assessment and EMP.
	♦ Performance Standard 7: Indigenous Peoples	Not applicable to the assessment as there are none such inhabitants	Not applicable to the assessment.
	♦ Performance Standard 8: Cultural Heritage	Proposed projects are to include elements which will address impacts that may affect cultural heritage resources.	Mitigation measures will be included in the Detailed Assessment and EMP as per specialist input.

7 ENVIRONMENTAL CHARACTERISTICS

This section lists the most important environmental characteristics of the study area and provides a statement on the potential environmental impacts on each.

7.1 Locality and Surrounding Land Use

Aussenkehr is located in the Karasburg-West constituency of the Karas Region in Namibia, on the Orange River which forms an international border with South Africa. The area is accessed by the C13 Route (Road Number D0212) from Noordoewer. The entire settlement (known as Aussenkehr) and all related agricultural activities is on privately owned land on the Farm Aussenkjer 147 which has also been declared, in part, as a private nature reserve. The Ai-Ais National Park is located to the west of the greater Aussenkehr while the Richtersveld National Park site of South Africa is located adjacent to Aussenkehr, in South African. These areas have together been classified as the Ai-Ais Richtersveld Transfrontier Park. Protected areas in close proximity to the site are indicated in Figure 2.

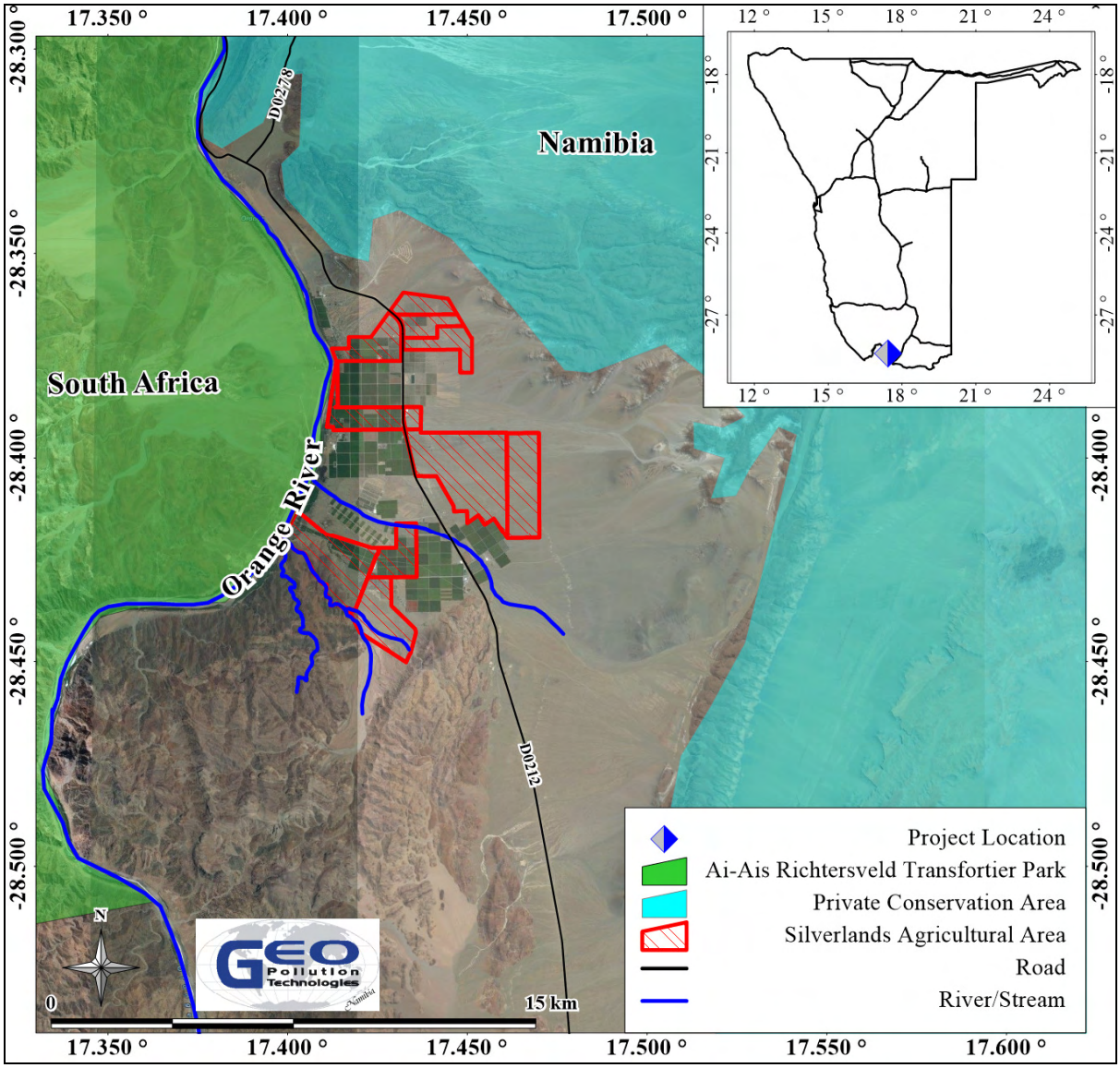


Figure 2. Surrounding Sensitive Land Use

Implications and Impacts

The remote location of the project not only highlights the specific environmental and climatological suitability, but also amplifies the regional sensitivity of the site. The project will be develop, in part, towards the eastern border of the valley which is the start of a private conservation area (beyond the ridge). Caution should further be taken during vineyard establishment to ensure that no undue disturbance outside of the planned expansion areas is caused. Construction vehicles travelling to and from the area should be made aware of safety requirements for the established vineyards and any other established infrastructure such as the NamPower powerline and substation.

7.2 Climate

Aussenkehr, located in the Orange River Valley is renowned for its extremely hot and dry summers and up to 12 hours daylight in the summer. On average, the area receives approximately 10 hours of daily sunlight per annum. Combined with high radiation levels of up to 5.8 kWh per m^2, the area is ideal for growing table grapes and producing renewable solar energy. Very little precipitation and wind are present throughout the year. However, localised wind patterns are mostly influence by uneven heating of the surrounding earth surface resulting in slight westerly winds throughout the year.

Table 4. Summary of Climate Data for Aussenkehr (Atlas of Namibia)

Average annual rainfall (mm/a)	0 - 50
Solar Radiation kWh Per m2	5.6 – 5.8
Sunshine per day (Hours / day)	9 - 10
Windspeed	Light to moderate breeze throughout the year
Localised Wind Direction	Westerly

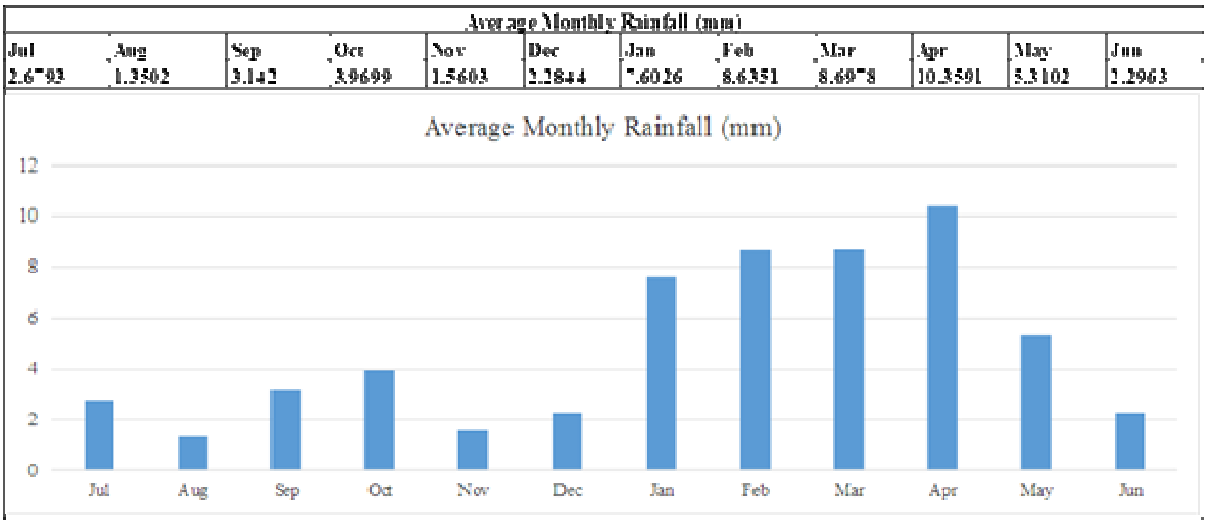


Figure 3. Average Monthly Rainfall for Aussenkehr (Atlas of Namibia)

Implications and Impacts

Caution should be taken during the development phase when winds are blowing as dust may be blown to the adjacent vineyards. Normal vehicle movement may further deposit dust. Clear indication and instruction should further be considered towards operation of dust generating activities. High radiation and UV exposure levels and very high summer temperatures may result in heat stroke of workers. Sufficient Personal Protective Equipment (PPE) (hats) should be made available to all workers during all phases of operations. The high solar radiation and evaporation rates may necessitate covering of storage dams to minimise water system losses.

7.3 Topography and Surface Water

Located in an open valley system, the area is generally flat, slightly sloping in an east west direction gradually increases east of the site to 700 m at the top of the ridge line while decreasing to 115 m at the Orange River at the most southern portions of the area. All water falling in the area flows towards the Orange River and mainly through the Inaub River and other main drainage lines as indicated in. Figure 4 below. These drainage lines have been highlighted in light blue to indicate its relation to the project area. The major drainage lines fall mainly outside of the current and planned agricultural area, however a major drainage line traverses the informal residential area which has cause damage during flash floods prone in the area. The Dark blue arrows indicate the slope as directly related to the flow velocity of water. The larger the arrow, the steeper the slope and greater the velocity of flow will be. Two major drainage lines flow adjacent to the landfill site located on the most southern portion of the Silverlands property,

The figure indicates the surface flow regime of the site and surrounding areas.

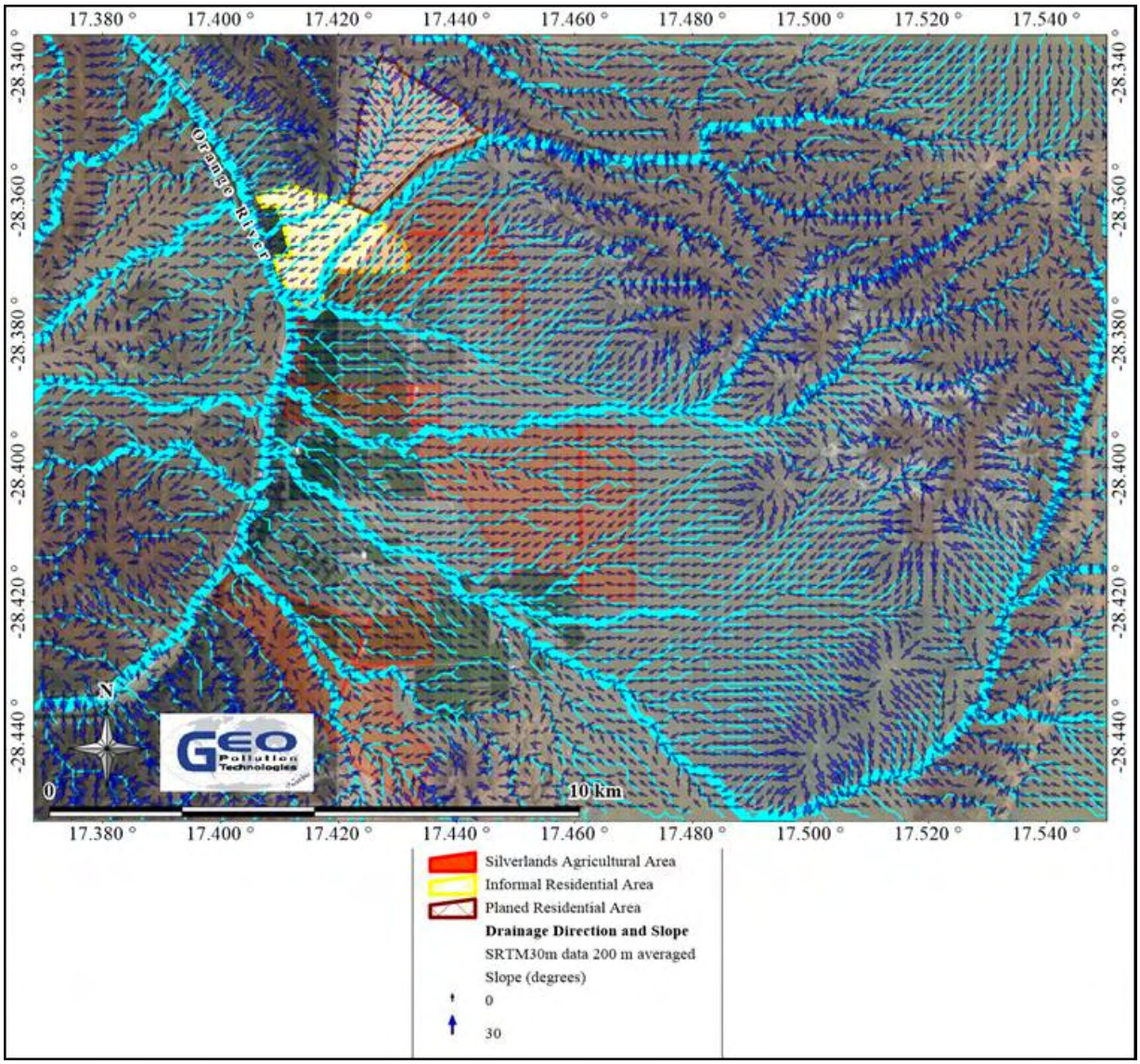


Figure 4. Regional Surface Drainage

Implications and Impacts

Due to the limited rainfall events, it is not foreseen that any possible pollution of spillages may be washed into the Orange River, as per the drainage of the region. However, flash floods occur in the area and all planning of development should plan to consider major drainage lines across the site. Continuous irrigation practises, by all operators in the area, ensure that surface water is continually visible – even during the hottest summer months. In addition, open channels dug to facilitate drainage are clearly visible around the eastern portions of the site. Any surface flow will follow along these channels as being least obstructed route to the Orange River. The channels have created a new habitat.

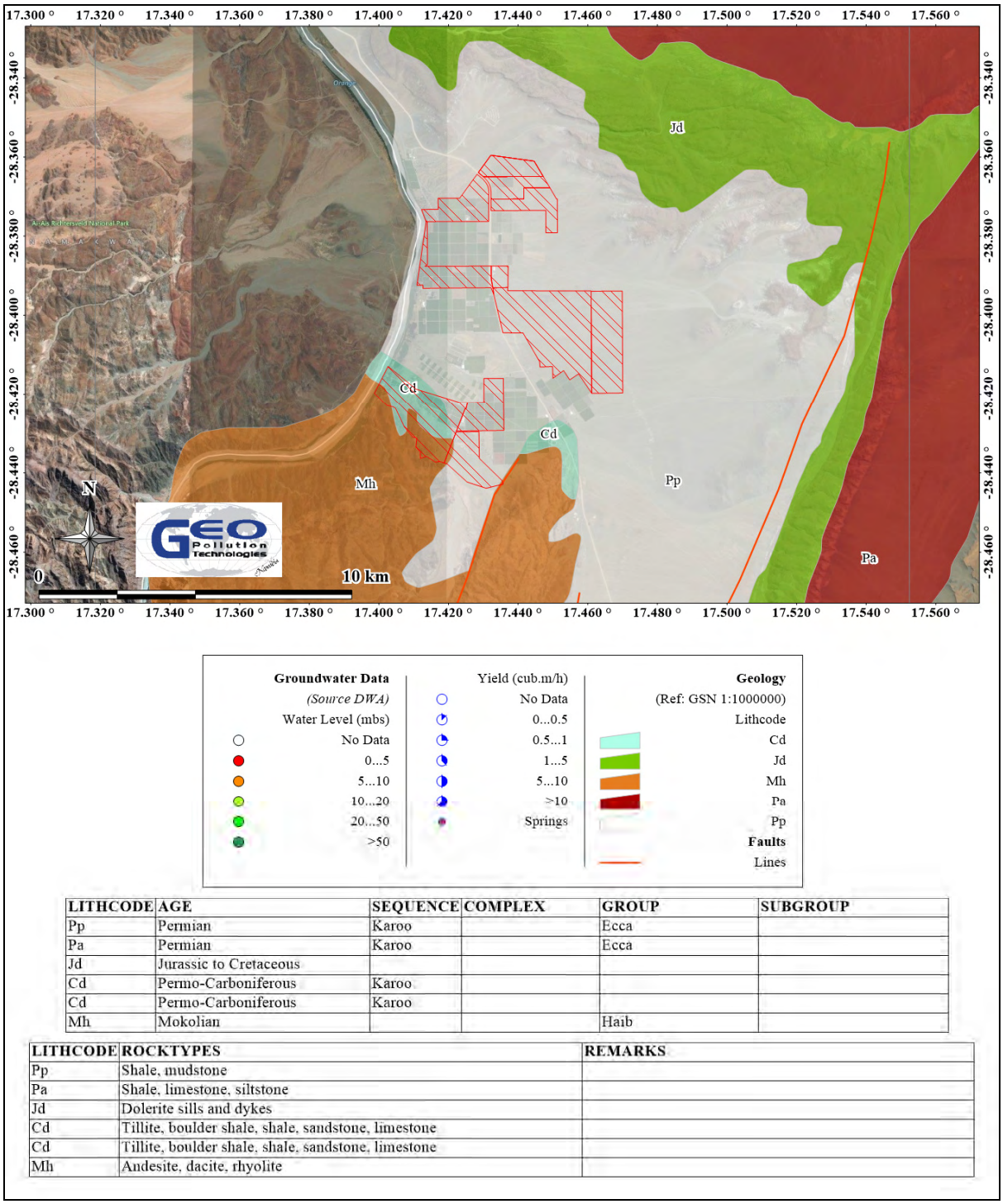
7.4 Geology and Hydrogeology

The site is directly underlain by formations of the Prince Albert Formation (Pp), see Figure 5. The Prince Albert Formation at Aussenkehr consists out of shale of the larger Ecca Group (Karoo Supergroup) and therefore is dominated by bluish- to greenish-grey shale deposits with very few sandstone intercalations. This is underlain by rocks of the Dwyka Group (Cd). The Dwyka Group outcrops to the south of the project site, with Mokolian aged rocks even further south, see Figure 5. Dwyka Formation rocks that outcrop here are commonly red weathering sandy mudstone, turbiditic sandstone and silicious shale with lenticular layers of boulder beds and calcareous concretionary masses. The sandstone are frequently ripple-marked and intensively traversed by invertebrate tracks composed of drop stone-bearing shale and intercalated layers of boulder-mudstone.

Due to the high clay-mineral content of shale, the soil of the Aussenkehr plains are typically rich in clay-minerals and the top soils of the plains are typically silty and clayey loam (Belcher, 2012). The clay common minerals that have been noted to occur in the soil are illite, smecktite and montmorillonitic-bentonite (Werner, 2006) which form as part of the weathering product of dolerite and tuff. Due to the desert conditions of Aussenkehr, the evaporation rate of moisture from the top soil is very high, causing the soil to be enriched with salts and may cause evaporitic minerals to form, e.g. gypsum (Belcher, 2012). The Karoo-aged dolerite sills that occur on the higher valley ridges have also contributed to the clay-mineral content of the soil.

Outwash fans with dry braided drainage patterns, dating from the Quaternary, caused recurring erosion and deposition episodes to take place on the valley slopes along the Orange River valleys, especially in the Aussenkehr valley, partly covering the underlying rock formations. Tertiary Aged river terraces along the Orange River may contain diamonds.

Groundwater is not available in any quantity to utilise for agriculture. Flow in the subsurface will mainly be through primary porosity in the unconsolidated top layers and through secondary porosity in the consolidated formations. It is conceptualised that the majority of flow will be towards the river in the unconsolidated layers.



LITHCODE	AGE	SEQUENCE	COMPLEX	GROUP	SUBGROUP
Pp	Permian	Karoo		Ecca	
Pa	Permian	Karoo		Ecca	
Jd	Jurassic to Cretaceous				
Cd	Permo-Carboniferous	Karoo			
Cd	Permo-Carboniferous	Karoo			
Mh	Mokolian			Haib	

LITHCODE	ROCKTYPES	REMARKS
Pp	Shale, mudstone	
Pa	Shale, limestone, siltstone	
Jd	Dolerite sills and dykes	
Cd	Tillite, boulder shale, shale, sandstone, limestone	
Cd	Tillite, boulder shale, shale, sandstone, limestone	
Mh	Andesite, dacite, rhyolite	

Figure 5. Geology Mapped Across the Various Portions of the Site

Implications and Impacts

An average of 2400 mm of rain a year over irrigated areas may result in soils being leached. However, due to the nutrients added to the irrigated water, the soil may become denser which may increase germination and drainage challenges. Additional water infiltration may result in a perched water table.

Although groundwater is not utilised in the area, it must still be protected against pollution. Polluted groundwater may transport pollutants to the nearby Orange River. The presence of gypsum in the soil may impact on concrete structures and can caused increased metal corrosion.

7.5 Aussenkehr Water Supply

All water supply to Aussenkehr is pumped from the Orange River. Domestic purpose water (for office and general operational use), is fed from the main water lines supplying the irrigation schemes. However, residents of the settlement area have also connected (the legality of these connections remains undetermined) to the irrigation lines of the vineyards adjacent to the area. Such unstructured and uncontrolled connections reach far into the residential area supplying people with water when water is pumped for irrigation purposes (mostly twice a day). The project team was informed that the connections were made to another company's vineyards and that a new pump was being installed for the community (during the compilation of this report), however, in future such connections may again surface and connect to existing irrigations systems which may include Silverlands property (as per the area known as Portion 87) Figure 6. Apart from these connections, local and private initiatives by the farm owner established a water point for the community by connecting 7 taps (located next to the post office) to supply tanks which are fed from commercial pump stations. These are not connected to the pump station being constructed at the time of the compilation of this report. Initially the tanks used chlorination as a form of purification, however, during the site visit is was apparent that there is no longer any functional purification.

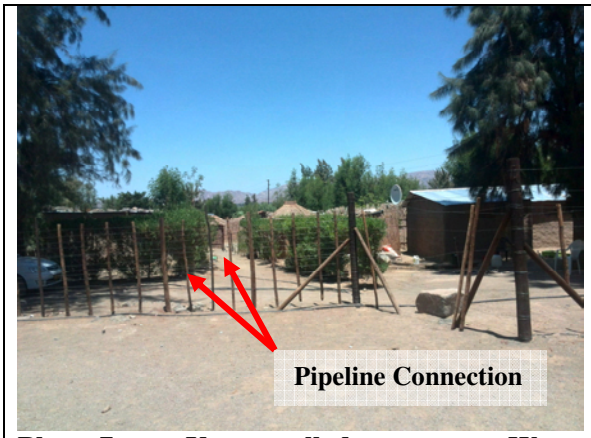


Photo 7. **Uncontrolled Water Connection Pipelines**

Photo 8. **Water Tanks Feeding the Community Taps Next to the Post Office**

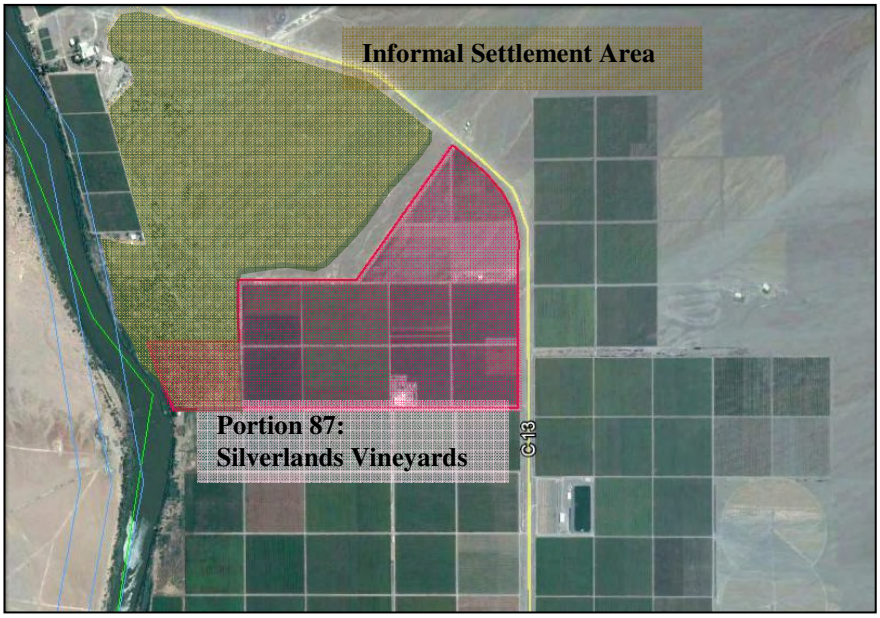


Figure 6. **Unscaled Image of the Existing Vineyards Which may be affected by Uncontrolled Community Water Connections**

As per discussions with the Engineering Company overseeing the construction of the NamWater Bulk Water Supply project in Aussenkehr, a concern was raised that the infrastructure being established will only be for the area north of the informal settlement area, the portion of property that will be developed into a formal residential area. It was mentioned that the current population, residing in the informal area will not benefit from the project as there is no infrastructure development to distribute the water to them.

Implications and Impacts

There is no effective and operational water supply to the informal settlement area and neither are there any plans to address the situation for the medium and long term development planning. It is therefore foreseen that community connections to the vineyards irrigation systems will be ongoing and may develop exponentially as more connections are added to the existing and new lines. There is a possibility that such connections may be established, in future, along the Silverlands property.

7.6 Fauna and Flora

The site falls within the Nama Karoo Biome of Namibia which is recorded to have a grass cover of between 2 and 10 %. Although, the area borders the Succulant Karoo Biome which has less and 0.1% grass cover which is a more accurate description of the site and surroundings which does not have any grass cover. This corresponds with the Average Green Vegetation Biomass Production Atlas for Namibia which classifies the area as a category 2: Bare ground. Although the habitat is further classified as being suitable for quiver trees most of the valley has been transformed by agricultural activities and no trees have been observed in the area or close to the site. Casaurinatrees have however been planted around the north-eastern perimeter of the adjacent vineyards to act as a windbreak. These trees are not indigenous to the area and are supported with a drip irrigation systems. Similar trees are further located amongst some of the existing southern vineyards as well.

No animals or reptiles were noted during the site visit. However, various bird species are especially visible along the river and drainage channel system. Larger game such as Kudu and Springbok have been seen in the area by some of the employees, The tables below provide a general summary of the fauna and flora of the region.

Table 5. General Flora Data (Atlas of Namibia)

Vegetation type	Karas dwarf shrubland
Vegetation structure type	Sparse shrubland
Diversity of higher plants	Low medium plus (Diversity rank = 5 [1 to 7 representing highest to lowest diversity])
Number of plant species	100 -150
Percentage tree cover	0.1-1
Percentage dwarf shrub cover	3,6
Dwarf shrub height (m)	0.5
Grass height (m)	0.5
Dominant plant species 1	Extremely diverse:
Dominant plant species 2	*Rhigozum trichotomum*-s2

Table 6. General Fauna Data (Atlas of Namibia)

Mammal Diversity	61 - 75 Species
Rodent Diversity	20 - 23 Species
Bird Diversity	81 - 110 Species
Reptile Diversity	61 - 70 Species
Snake Diversity	20 - 24 Species
Lizard Diversity	> 35 Species
Scorpion Diversity	16 - 17 Species

Along the Orange River there is an area which is being maintained for tourism purposes to an unnatural environment for the region. A lawn is kept and irrigated to accommodate canoeing tourists which exit the river at this site. Further downstream the river banks are overgrown with dense vegetation.

Photo 9. Tourism Area

Photo 10. Vegetation Growth Along the Drainage Channel

Photo 11. North-eastern View From the Most Eastern Portions of the Site

Photo 12. Dense vegetation Along the River

Implications and Impacts

No vegetation cover may result in greater erosion of topsoil. Greater dust clouds are prone over bare soil and therefore caution should be given during development activities that generate larger volumes of dust. Activities should be timed to avoid windy conditions where possible. Possible pollution and change of habitats (cumulative impacts) may ensure the occurrence of species not traditionally know to be in the area.

7.7 Social and Cultural Characteristics

Statistics for the demographic profile of Aussenkehr has proven to be lacking in reliable and recent data. Various stakeholders to the project as well as inhabitants of the area have estimated the number of people residing in the valley to be up to 20,000 during the harvesting season. This number is widely accepted to drop to a quarter during the rest of the year. Seasonal and migrant workers are the greatest component of the workforce. During the harvesting and packing season, thousands of these workers flock to the area from all over Namibia, seeking employment opportunities. Statistics used by NamWater to determine the amount of water that should be provided in future, estimate that for every employed worker in the area, there are 6 persons who

are not economically active. They reside in a designated residential area alongside permanent employees. During this Environmental Assessment two key issues related to Aussenkehr's development and planning has surfaced. Although no official documentation has been included, it was established that a certain portion of the greater Aussenkjer Farm (147) (which is still privately owned) has been donated to the government for the establishment of adequate housing / town complex. At the time of the compilation of this report, it was noted that NamWater was busy constructing a reservoir which will, among other purposes, also serve such a proposed community (to be formalised on the donated property). No information could be verified regarding the possible power and sewerage requirements of such an area, it could be expected though that additional pressure will be placed on the existing power supply. There is no formal, operational public sewerage infrastructure in Aussenkehr.

Further to planning investigations, discussions held with the Namibian Development Corporation (which is the implementation agent for the Karas Region's Capital Projects), confirmed that no projects have been identified for that particular location as per the Ministry of Industrialisation, Trade and SME Development in the following financial year (2015/2016). There are however ongoing initiatives regarding public health and services to be provided in the area by national planning. Discussions with the local and regional councils confirmed that any infrastructure development funding will have to be sourced from governing ministries rather than local or regional government. Development of the formalised settlement area (for labourers) is hinged on governmental input and participation.

This informal residential area is located adjacent to Silverlands portions while some social amenities are located on their property (Figure 7), the new proposed formal residential area (not yet developed or inhabited) is located approximately 300 m from the closest Silverlands property.

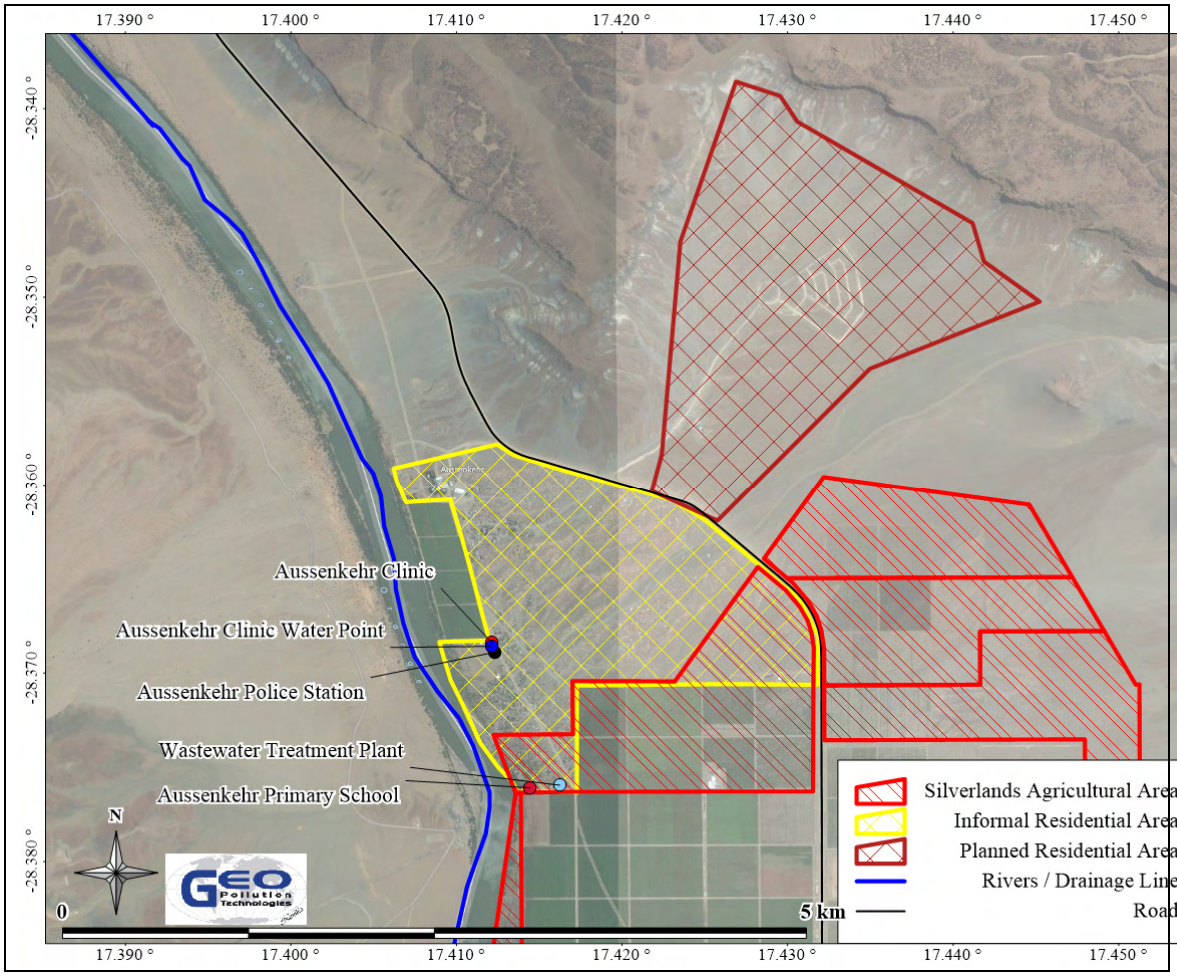


Figure 7. Informal and Planned Residential Areas in relation to Community Amenities and Silverlands Property

This residential area, as indicated in the photos below remains un-serviced with no running water, waste removal or decent sanitation facilities. Dwellings are of a temporary nature mostly constructed from reeds and or corrugated iron.

Photo 13. Established Housing Units of Some Permanent Residents

Photo 14. Southerly View From the Northern Boundary / Edge of the Informal Residential Area

There has however been considerable effort made by the local land owners and farming operators in the area to improve the situation. Various companies deliver water to the workers multiple times a week while all contribute financially to a general 'town keeping initiative". In spite of all the efforts, there is a serious lack of service delivery and the area is in dire need to be formalised. To facilitate the formalisation process, Plots have been developed on the donated land and the reginal government are in the process of establishing the required infrastructure. This has however been an ongoing process from 2006. During the compilation of this report, it was established that NamWater was in the process of constructing a water reservoir and treatment works in order to service the community and planned development. The project team had also been made aware of another Environmental Assessment which is being undertaken for a new power line from Noordoewer which will increase electricity supply in the area and possibly assist in supply to the proposed formalised residential area. The photos below depict some of the construction works from the treatment works being constructed by NamWater.

Photo 15. Construction Site of the Wastewater Treatment Works, View From Within the Construction Perimeter

Photo 16. Construction Site of the Wastewater Treatment Works, View From Outside The Construction Perimeter

In the interim local and regional government has further established some services within the informal residential area, mostly in joint ventures with some of the companies. A local clinic and police station has been established as well as a primary school and various pre-primary schools (all buildings have been donated by the local farming operators). All of these amenities are provided with water and electricity as indicated in the photos below.

Photo 17. Entrance to the Aussenkehr Primary School

Photo 18. Perimeter Fence of A Local Crèche / Child Care Centre

Photo 19. Aussenkehr Police Station

Photo 20. Water point behind the Clinic (one of two in the community)

Photo 21. Day Care Centre Next to the Clinic And Watering Point

Photo 22. Aussenkehr Clinic

Implications and Impacts

Expansion of will increase employment in the area. Skills development and training would also be a benefit to employees. The development may have an influence on further stimulating economic growth of area which may result in more job opportunities. Additional people would however also put additional pressure on existing limited infrastructure and natural resources in the area. If full expansion is reached community related impacts will increase. Indirect and cumulative impacts will contribute to the dire state of the community health.

8 PUBLIC CONSULTATION PROCESS

Consultation with the public forms an integral component of an EA and enables Interested and Affected Parties (IAPs) e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the operations and to identify additional issues which they feel should be addressed in the Detailed Assessment phase. Consultation was initiated and facilitated through notification letters, site and press notices and stakeholder meetings.

8.1 Press Notices

Press notices were placed in two national newspapers for two consecutive weeks. Notices appeared in Die Republikein and The Namibian on the 1st of December and the 14th of December 2015.

8.2 Site Notices

Site notices for this particular application were erected on site on the 5th of December 2015 and were still present at the time of the compilation of this report. Additional photographs of the site notices are attached in Appendix A.

8.3 Stakeholder Notification Letters

Neighbours and key IAP which were identified including NGO's and governmental agencies such as the regional and local government, NamWater, NamPower etc. received notification letters informing them about the proposed development as well as inviting them to provide their comments and concerns. As the project is on the border with South Africa, various international related agencies were also informed. A list of the parties to which the notification letter were sent is attached in Appendix A.

8.4 Stakeholder Meeting

Although public meetings are not a requirements of the EMA, various informal stakeholder meetings were held during which the project components were discussed and attendees provided with an opportunity to ask clarification questions and provide concerns for assessment. These have been conducted during two site visits to the area.

8.5 Background Information Document

Background Information Documents (BIDs) were provided to various IAP continually through the project initiation process. This document provides an overview and non-technical summary of the proposed development and act as an easy reference to proposed project information.

8.6 Building a stakeholder database

During the initiation phase of the public consultation process, IAPs were made aware of their rights to provide input into the assessment process through registering on the project and providing comments and concerns. This invitation appeared on all the notices as mentioned above. Combining the registered parties with those already identified to be possible IAPs (which received notification letters) cumulated in the stakeholder list for the project. All parties on this list receives and will continually receive information about the ECC application as well as an opportunity to comment on this report as well as the Detailed Assessment. All the comments and

concerns received to date have been documented and are attached in the Appendix A. The main issues of concerns have been detailed below.

8.7 Comments and Concerns

Various oral comments and concerns have been recorded most of which are in support of the project. The main concerns are the following:

- Electricity constraints in Aussenkehr;
- Land tenure;
- Construction workers housing;
- Employment requirements (Namibian); and
- Dust emissions.

9 IDENTIFIED IMPACTS

During the scoping exercise a number of environmental impacts have been identified. The following section provides a brief description of the most important of these impacts.

Table 7. Preliminary Identified Impacts

Activity	Description	Sensitivity	Potential Impact
Planning Phase			
Developing project feasibility & permitting	• By developing the project with an international partner, a large amount of investment capital is spent on hiring and remuneration of the professional team • Project planning is in line with national initiatives regarding agriculture development	• Economy • National development	• Additional revenue generated in the professional sector • Contribution towards national planning on agricultural development and exporting markets
Development Phase			
Operation of Heavy Motor Vehicles (HMV) / Tractors / Busses	HMV and machines require maintenance and have the potential to breakdown in which case there is a risk of hydro carbon spillage	• Soil • Groundwater • Health and Safety	• Soil contamination • Groundwater contamination • Employee injury
Dust control	Dust abatement measure may include wetting surfaces with water. Excess water onto the Gypsum rich soil may result in a more saline soil / groundwater. Cement may further react with the water and soil combination which will result in corrosion	• Soil • Groundwater	• Soil degradation & erosion • Groundwater contamination
Site clearance & excavation activities	Removal of the extremely limited vegetation on site. Increased human activity	• Vegetation • Ecosystem • Biodiversity	• Loss of biodiversity • Loss of habitat ecosystem integrity
	Disturbance of top- and subsoil	• Soil • Ecosystem • Biodiversity • Groundwater	• Loss of habitat and ecosystem integrity • Initial increased drainage
	Disturbance / destruction of identified heritage and archaeological resources	• Heritage and archaeological resources	• Loss of heritage and archaeological resources
	Dust and noise will be generated when the soil is disturbed and handled	• Vineyards • Adjacent	• Dust on leaves conducive to mites

Activity	Description	Sensitivity	Potential Impact
		residents	♦ Nuisance factor noise ♦ Visual
	Possible excavation of heritage or archaeological artefacts	♦ Heritage	♦ Increase in local heritage resources
General construction activities	The use of machinery, trucks and excavations will create noise and will be visually intrusive	♦ Adjacent residents ♦ Visitors	♦ Nuisance factor noise ♦ Visual
Transportation of construction material (drainage and irrigation) and goods	Machinery and construction provisions are to be delivered to the site via the existing and only tar road in the area	♦ Road users	♦ Increased collision risk ♦ Road degradation ♦ Hazardous substance spillage
Provision of fuel / fuel storage	Fuel will be required for operation of construction machinery and HMV	♦ Soil ♦ Groundwater ♦ Health & safety	♦ Soil contamination ♦ Groundwater contamination ♦ Fire
Transportation of Labour	Labourers are transported to and from operations via busses daily	♦ Health & Safety	♦ Collision and breakdown risk
Generation of construction waste (including use of cement in structures)	General construction activities produce normal- and may also produce hazardous waste such as hydrocarbon containers which are to be handled and removed	♦ Soil ♦ Health & Safety	♦ Soil contamination ♦ Health and safety risk ♦ Fire Hazard
Employment of labour	A workforce of skilled and unskilled labour will be required during the development phase	♦ Economy & demographic profile	♦ Increased Employment
	By employing unskilled labour locally, skills transfer may occur	♦ Local labour force	♦ Skills development
Labour accommodation	All employees which are not from the area will be housed in the local establishments available	♦ Community Health ♦ Local economy	♦ Accommodation hire ♦ Social interaction resulting in spread of infectious diseases as well as HIV/AIDS
Renovations on Existing structures / buildings (hub bays / hub house)	Depending on the renovations required, there may be dust and noise nuisance as well as health and safety implication and possible biophysical pollution	♦ Dust & Noise ♦ Soil ♦ Vegetation ♦ Health & Safety	♦ Soil & groundwater pollution ♦ Risks to injuries and health related impacts.
Expansion of hubs /pack houses	Depending on the renovations required, there may be dust and noise nuisance as well as health and safety implication and possible biophysical pollution	♦ Dust & Noise ♦ Soil ♦ Vegetation ♦ Health & Safety	♦ Soil & groundwater pollution ♦ Risks to injuries and health related impacts.
Development and Operation of Solar Plant	Current 250 kW Solar plant is being constructed to be increased in capacity to 750 kW	♦ Soil ♦ Local power demand	♦ Soil contamination ♦ Reduced future demand on NamPower (more power available for the community).
Operational Phase			
Maintenance of Vineyards	Storage, handling and administration of herbicides, pesticides and nutrients.	♦ Health & Safety ♦ Contamination	♦ Incidents of intoxication ♦ Spills and incorrect

Activity	Description	Sensitivity	Potential Impact
		(soil, groundwater)	administration
Water Use (Abstraction, storage, irrigation & disposal)	Water abstraction will increase (although no additional storage will be required)	♦ Orange River	♦ Cumulative effect of water abstraction
	Area under irrigation will be increased (cumulative effect) additional 1,000 Ha of irrigation (Soil degradation)	♦ Soil ♦ Groundwater	♦ Change in soil characteristic (possible degradation)
	Drainage channels flow into the Orange River (water full of nutrients and possible pesticides and herbicides)	♦ Soil ♦ Groundwater ♦ Surface water	♦ Orange River Water quality may change resulting in ecosystems change
General construction activities	The use of machinery, trucks and excavations will create noise and will be visually intrusive	♦ Adjacent residents ♦ Visitors	♦ Nuisance factor noise ♦ Visual
Transportation of construction material (drainage and irrigation) and goods	Machinery and construction provisions are to be delivered to the site via the existing and only tar road in the area	♦ Road users ♦ Infrastructure	♦ Increased collision risk ♦ Road degradation ♦ Hazardous substance spillage
Provision of fuel / fuel storage	Fuel will be required for operation of construction machinery and HMV	♦ Soil ♦ Groundwater ♦ Health & safety	♦ Soil contamination ♦ Groundwater contamination ♦ Fire
Transportation of Labour	Labourers are transported to and from operations via busses daily	♦ Health & Safety	♦ Collision and breakdown risk
General Maintenance	Leakages or spills from hazardous waste that may include hydrocarbon contaminated material.	♦ Soil ♦ Groundwater	♦ Soil contamination ♦ Groundwater contamination ♦
Pruning	Reduction in growth season – greenhouse gasses Using sharp tools	♦ Safety	♦ Increased risk of injury
	Creation of energy for fuel (selling of giving wood away)	♦ Living Standard	♦ Increased living standard ♦ Increased fire risk
Harvesting and packaging	Additional labour required during the harvesting and packaging season	♦ Local Economy ♦ Demographic profile	♦ Increase economic resilience ♦ Increased localised expenditure
	Fire hazard of storage material and increased number of people (and smokers)	♦ Health & Safety	♦ Increased risk of fire in pack houses
	Additional pressure on sanitation services	♦ Health & Safety ♦ Soil	♦ Addition pressure on sanitation infrastructure
	Additional traffic amongst vineyards and to the area	♦ Road users ♦ Employees	♦ Increased collision risk
Carbon Emissions generation	Farm, Cold storage, Pack House & Freight	♦ Air	♦ Increased release of greenhouse gas emissions vs increased absorption of gases as per increased vineyards.

Activity	Description	Sensitivity	Potential Impact
Supplying of export product	Provision of table grapes to international markets generates revenue for national treasurer	♦ Local and national economy	♦ Increased revenue
General Management of facility and tasks	Local labour will be employed as security and operator and trained where required (inclusive of cleaning and maintenance)	♦ Local economy	♦ Economic resilience ♦ Employment ♦ Increase in skilled workforce
Successful implementation of the project	Should the project be successfully implemented and suitably feasibly, it will increase clients confidence in Namibia	♦ National Economy	♦ Increased investment
	Should the project be operationally successful the implementation thereof will be in line with national pressure and agreements regarding the development of the agricultural sector	♦ National and regional planning	♦ Cumulative impact on development

10 TERMS OF REFERENCE: DETAILED ASSESSMENT

The scoping assessment identified impacts which will be carried forward to the Detailed Assessment to be fully assessed as per an impact assessment matrix. The weight of impact significance may further be influenced by specialist input. Specialist studies will also aim to identify any other additional impacts which may be pertinent to the project. Specialist studies which have been identified for the detailed assessment are the following:

- Surface- and Groundwater Assessment
- Social Impact Assessment
- Heritage Assessment
- Ecosystems Service Assessment (Based on the Orange River)
- Aquatic and Soil Ecological Assessment

Each of the assessments as mentioned above will be conducted by a suited specialist working in Namibia. Where appropriate and required flied assessments will be carried out to synthesis experience with the results of the desk top assessments. The findings of the assessments will thereafter be included in the Detailed Assessment which will aim to assess and identify the most pertinent environmental impacts and provides possible mitigation / enhancement measures that are expected from the all of the phases of the project. The Rapid Impact Assessment Method (Pastakia, 1998) will be used during the assessment. Ranking formulas are calculated as follow:

A = A1 x A2
B = B1 + B2 + B3
Environmental Classification (ES) = A x B

The Environmental Classification of impacts are provided in Table 8 while the assessment criteria is provided in Table 9 and Table 10.

Table 8. Environmental Classification of Impacts according to the Rapid Impact Assessment Method of Pastakia 1998.

Environmental Classification (ES)	Class Value	Description of Class
72 to 108	5	Extremely positive impact
36 to 71	4	Significantly positive impact
19 to 35	3	Moderately positive impact

10 to 18	2	Less positive impact
1 to 9	1	Reduced positive impact
0	-0	No alteration
-1 to -9	-1	Reduced negative impact
-10 to -18	-2	Less negative impact
-19 to -35	-3	Moderately negative impact
-36 to -71	-4	Significantly negative impact
-72 to -108	-5	Extremely Negative Impact

Table 9. Assessment Criteria

Criteria	Score
Importance of condition (A1) – assessed against the spatial boundaries of human interest it will affect	
Importance to national/international interest	4
Important to regional/national interest	3
Important to areas immediately outside the local condition	2
Important only to the local condition	1
No importance	0
Magnitude of change/effect (A2) – measure of scale in terms of benefit / negative contribution of an impact or condition	
Major positive benefit	3
Significant improvement in status quo	2
Improvement in status quo	1
No change in status quo	0
Negative change in status quo	-1
Significant negative change	-2
Major negative contribution or change	-3
Permanence (B1) – defines whether the condition is permanent or temporary	
No change/Not applicable	1
Temporary	2
Permanent	3
Reversibility (B2) – defines whether the condition can be changed and is a measure of the control over the condition	
No change/Not applicable	1
Reversible	2
Irreversible	3
Cumulative (B3) – reflects whether the effect will be a single direct impact or will include cumulative impacts over time, or synergistic effect with other conditions. It is a means of judging the sustainability of the condition – not to be confused with the permanence criterion.	
Light or No Cumulative Character/Not applicable	1
Moderate Cumulative Character	2
Strong Cumulative Character	3

Table 10. Criteria for Impact Evaluation (Directorate of Environmental Affairs, 2008)

Risk Event	Description of the risk that may lead to an impact.
Probability	Refers to the probability that a specific impact will happen following a risk event. **Improbable** (low likelihood) **Probable** (distinct possibility) **Highly probable** (most likely) **Definite** (impact will occur regardless of prevention measures)
Confidence Level	The degree of confidence in the predictions, based on the availability of information

	and specialist knowledge. **Low** (based on the availability of specialist knowledge and other information) **Medium** (based on the availability of specialist knowledge and other information) **High** (based on the availability of specialist knowledge and other information)
Significance (no mitigation)	**None** (A concern or potential impact that, upon evaluation, is found to have no significant impact at all.) **Low** (Any magnitude, impacts will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design.) **Medium** (Impacts of moderate magnitude locally to regionally in the short term. Accordingly the impact is expected to require modification of the project design or alternative mitigation.) **High** (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly the impact could have a 'no go' implication for the project unless mitigation or re-design is practically achievable.)
Mitigation	Description of possible mitigation measures
Significance (with mitigation)	**None** (A concern or potential impact that, upon evaluation, is found to have no significant impact at all.) **Low** (Any magnitude, impacts will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design.) **Medium** (Impacts of moderate magnitude locally to regionally in the short term. Accordingly the impact is expected to require modification of the project design or alternative mitigation.) **High** (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly the impact could have a 'no go' implication for the project unless mitigation or re-design is practically achievable.)

Once the Detailed Assessment has been completed, the report (including specialist studies) will be made available to the public while registered I&AP will receive notification of the opportunity to review the report and its findings. This will include international stakeholders which have vested interested in the Orange River. Once the review period has been completed, any additional comments received regarding the Detailed Assessment, will be incorporated and the final report submitted tot eh DEA.

11 ENVIRONMENTAL MANAGEMENT PLAN

The Environmental Management Plan (EMP) provides management options to ensure impacts of the project are minimised. An EMP is a tool used to take pro-active action by addressing potential problems before they occur. This should limit the corrective measures needed, although additional mitigation measures might be included if necessary. The EMP acts as a stand-alone document, which can be used during the various phases of the agricultural project. All personnel taking part in the operations of the project should be made aware of the contents of the EMP, so as to plan the operations accordingly and in an environmentally sound manner. An EMP for the planning, development (operational) and decommissioning phases of the project has been drafted and is available as a separate document.

The objectives of the EMP are:

- to include all components of the planning, development and operations of the project;

- to prescribe the best practicable control methods to lessen the environmental impacts associated with the operations of the project;
- to monitor and audit the performance of operational personnel in applying such controls; and
- to ensure that appropriate environmental training is provided to responsible operational personnel.

Silverlands could implement an Environmental Management System (EMS) for its operations. An EMS is an internationally recognized and certified management system that will ensure ongoing incorporation of environmental constraints. At the heart of an EMS is the concept of continual improvement of environmental performance with resulting increases in operational efficiency, financial savings and reduction in environmental, health and safety risks. An effective EMS would need to include the following elements:

- A stated environmental policy which sets the desired level of environmental performance;
- An environmental legal register;
- An institutional structure which sets out the responsibility, authority, lines of communication and resources needed to implement the EMS;
- Identification of environmental, safety and health training needs;
- An environmental program(s) stipulating environmental objectives and targets to be met, and work instructions and controls to be applied in order to achieve compliance with the environmental policy; and
- Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMS.
- The Environmental Management Plan.

12 CONCLUSION

The agricultural project of Silverlands plays a positive role in Aussenkehr and the Karas Region by providing employment and contributing to the establishment of infrastructure and development. The use of the land for table grape cultivation has a beneficial role in generating income in the region and promoting Namibia's exporting produce. No fatal flaws have been identified which could result in terminating the project or not continuing with the Detailed Assessment. Once the Scoping Report has been submitted tot eh DEA, the Detailed Assessment will be initiated.

Geo Pollution Technologies

Quzette Bosman
Social and Environmental Assessment Practitioner
June 2016

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Appendix A: Public Consultation Process

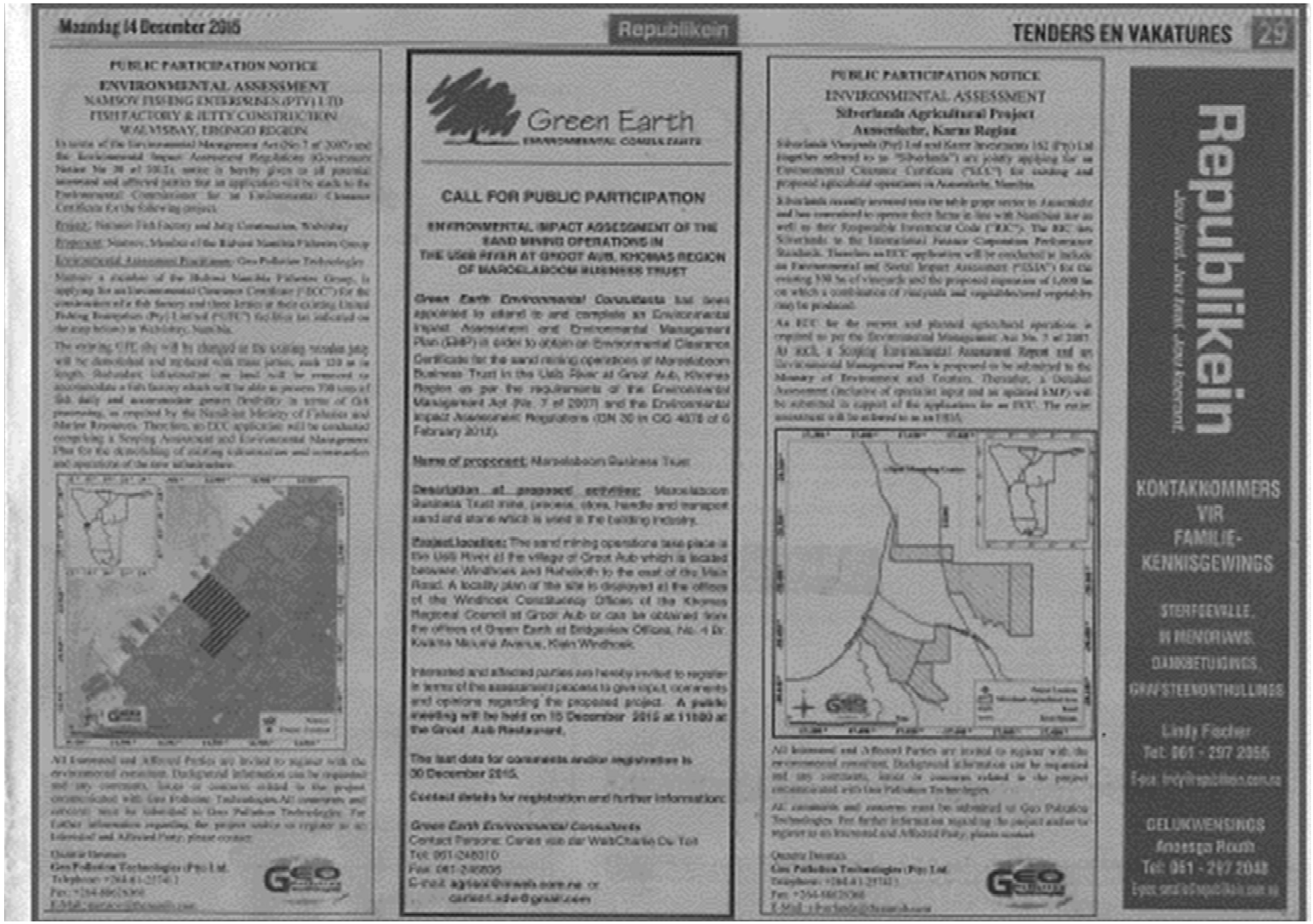
Site Notices: Silverlands Public Consultation Process

Site Notice 1: Entrance to the Silverlands Vinyards

Site Notice 2: Boundary of substation at the various pump stations (for various operators as per the buildings seen in the background)

Site Notice 3: Notice board at Aussenkehr Spar

Press Notices: Silverlands Public Consultation Process



Monday 14 December 2015 — Republikein — TENDERS EN VAKATURES 29

PUBLIC PARTICIPATION NOTICE

ENVIRONMENTAL ASSESSMENT
NAMSOV FISHING ENTERPRISES (PTY) LTD
FISH FACTORY & JETTY CONSTRUCTION
WALVISBAY, ERONGO REGION

In terms of the Environmental Management Act (No 7 of 2007) and the Environmental Impact Assessment Regulations (Government Notice No 30 of 2012), notice is hereby given to all potential interested and affected parties that an application will be made to the Environmental Commissioner for an Environmental Clearance Certificate for the following project:

Project: Namsov Fish Factory and Jetty Construction, Walvisbay

Proponent: Namsov, Member of the Ridwal Namibia Fisheries Group

Environmental Assessment Practitioner: Geo Pollution Technologies

Namsov a member of the Ridwal Namibia Fisheries Group, is applying for an Environmental Clearance Certificate (ECC) for the construction of a fish factory and three jetties at their existing United Fishing Enterprises (Pty) Ltd (UFE) facilities (as indicated on the map below) in Walvisbay, Namibia.

The existing UFE jetty will be changed in the existing wooden jetty will be demolished and replaced with three jetties, each 120 m in length. Subsidiary infrastructure on land will be removed to accommodate a fish factory which will be able to process 350 tons of fish daily and accommodate [illegible] in terms of fish processing, as required by the Namibian Ministry of Fisheries and Marine Resources. Therefore, an ECC application will be conducted comprising a Scoping Assessment and Environmental Management Plan for the demolishing of existing infrastructure and construction and operation of the new infrastructure.

All Interested and Affected Parties are invited to register with the environmental consultant. Background information can be requested and any comments, issues or concerns related to the project communicated with Geo Pollution Technologies. All comments and concerns must be submitted to Geo Pollution Technologies. For further information regarding the project and/or to register as an Interested and Affected Party, please contact:

District Director
Geo Pollution Technologies (Pty) Ltd.
Telephone: +264 61-257413
Fax: +264 886 [illegible]
E-Mail: [illegible]

Green Earth
ENVIRONMENTAL CONSULTANTS

CALL FOR PUBLIC PARTICIPATION

ENVIRONMENTAL IMPACT ASSESSMENT OF THE SAND MINING OPERATIONS IN THE USIB RIVER AT GROOT AUB, KHOMAS REGION OF MAROELABOOM BUSINESS TRUST

Green Earth Environmental Consultants Ltd. have appointed to attend to and complete an Environmental Impact Assessment and Environmental Management Plan (EMP) in order to obtain an Environmental Clearance Certificate for the sand mining operations of Maroelaboom Business Trust in the Usib River at Groot Aub, Khomas Region as per the requirements of the Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012).

Name of proponent: Maroelaboom Business Trust

Description of proposed activities: Maroelaboom Business Trust mine, process, store, handle and transport sand and stone which is used in the building industry.

Project location: The sand mining operations take place in the Usib River at the village of Groot Aub which is located between Windhoek and Rehoboth to the east of the Main Road. A locality plan of the site is displayed at the offices of the Windhoek Constituency Offices of the Khomas Regional Council at Groot Aub or can be obtained from the offices of Green Earth at Bridgeview Offices, No. 4 Dr. Kwame Nkrumah Avenue, Klein Windhoek.

Interested and affected parties are hereby invited to register in terms of the assessment process to give input, comments and opinions regarding the proposed project. **A public meeting will be held on 15 December 2015 at 11h00 at the Groot Aub Restaurant.**

The last date for comments and/or registration is 30 December 2015.

Contact details for registration and further information:

Green Earth Environmental Consultants
Contact Persons: Carien van der Walt/Charlie Du Toit
Tel: 061-248310
Fax: 061-249805
E-mail: agtox@mweb.com.na or carien1.vdw@gmail.com

PUBLIC PARTICIPATION NOTICE

ENVIRONMENTAL ASSESSMENT
Silverlands Agricultural Project
Aussenkehr, Karas Region

Silverlands Vineyards (Pty) Ltd and Karer Investments 162 (Pty) Ltd (together referred to as "Silverlands") are jointly applying for an Environmental Clearance Certificate ("ECC") for existing and proposed agricultural operations in Aussenkehr, Namibia.

Silverlands recently screened into the table grape sector in Aussenkehr and has committed to operate their farms in line with Namibian law as well as their Responsible Investment Code ("RIC"). The RIC ties Silverlands to the International Finance Corporation Performance Standards. Therefore an ECC application will be conducted to include an Environmental and Social Impact Assessment ("ESIA") for the existing 350 ha of vineyards and the proposed expansion of 1,000 ha on which a combination of vineyards and vegetables/seed vegetables may be produced.

As ECC for the current and planned agricultural operations is required as per the Environmental Management Act No. 7 of 2007. As such, a Scoping Environmental Assessment Report and an Environmental Management Plan is prepared to be submitted to the Ministry of Environment and Tourism. Thereafter, a Detailed Assessment (inclusive of specialist input and an updated EMP) will be submitted in support of the application for an ECC. The entire assessment will be actioned in an EIAS.

All Interested and Affected Parties are invited to register with the environmental consultant. Background information can be requested and any comments, issues or concerns related to the project communicated with Geo Pollution Technologies.

All comments and concerns must be submitted to Geo Pollution Technologies. For further information regarding the project and/or to register as an Interested and Affected Party, please contact:

Quentin Dreyer
Geo Pollution Technologies (Pty) Ltd.
Telephone: +264 61-257413
Fax: +264 886 [illegible]
E-Mail: [illegible]

Republikein
Sekere Gewaad, Sekere Hoofde, Sekere Koerante.

KONTAKKOMMERS VIR FAMILIE-KENNISGEWINGS

STERFGEVALLE,
IN MEMORIAMS,
DANKBETUIGINGS,
GRAFSTEENONTHULLINGS

Lindy Fischer
Tel: 061 - 297 2055
E-pos: lindy@republikein.com.na

GELUKWENSINGS
Annesga Roath
Tel: 061 - 297 2048
E-pos: [illegible]

» Abuja

Actis LLP belê in Nigerië se pensioene

Actis LLP, 'n private-ekwiteitsbelegger in ontwikkelende markte, het 'n beherende belang gekoop in die Nigeriese fondsadministrateur Sigma Pensions om munt te slaan uit die groeiende pensioenbedryf in dié land. Actis het US$62 miljoen betaal vir die belang in vennootskap met Sigma se uitvoerende hoof, Umaru Modibbo, en sy bestuur. Sigma het meer as 650 000 kliënte uit die 6 miljoen pensioenhouers in Nigerië met sy meer as 170 miljoen inwoners.

» Lusaka

Zambië 'het hulp van die IMF nodig'

Zambië moet noodgeld wat beskikbaar is by die Internasionale Monetêre Fonds (IMF) gebruik om verdere verval van die land se ekonomie te keer. Dit is die mening van Situmbeko Musokotwane, 'n eertydse minister van finansies van dié land.
"Zambië is vinnig op pad na 'n geldtekort en dit is belangrik dat die regering 'n ooreenkoms met die IMF tref om 'n plan te maak wat die ekonomie sal stabiliseer," sê hy.

» Addis Abeba

Afrika-ontwikkelingsbank waarsku

Die sterker dollar en swakker hulpbronpryse gaan Afrika-lande dwing om hul finansies goed te bestuur, sê Akinwumi Adesina, nuwe president van die Afrika-ontwikkelingsbank.
"Julle gaan hoëkosteskuld met swakker geldeenhede moet betaal, wat dit baie moeilik gaan maak om jul skuld te beheer," het hy gewaarsku.
Hy beveel aan dat Afrika-lande minder op hulpbronuitvoer staatmaak en meer fokus op waardetoevoeging.

» Dubai

Gratis aanlyn opleiding vir tegnici

Die masjinerievervaardiger Caterpillar het 'n webwerf met 'n aanlynstudiegerief bekend gestel waar voornemende tegnici meer kan leer.
Die webwerf word vir eers net in Nigerië, Mosambiek en die Demokratiese Republiek van die Kongo getoets.
Die webwerf, wat in Engels, Frans en Portugees beskikbaar is, kan deur enigiemand wat in die onderhoud van swaar toerusting belang stel, gebruik word.
Altesame 18 modules is gratis, terwyl intekenare toegang tot Caterpillar se volledige opleidingsmateriaal sal hê.

– Netwerk24/Bloomberg

PUBLIC PARTICIPATION NOTICE

ENVIRONMENTAL ASSESSMENT

Silverlands Agricultural Project

Aussenkehr, Karas Region

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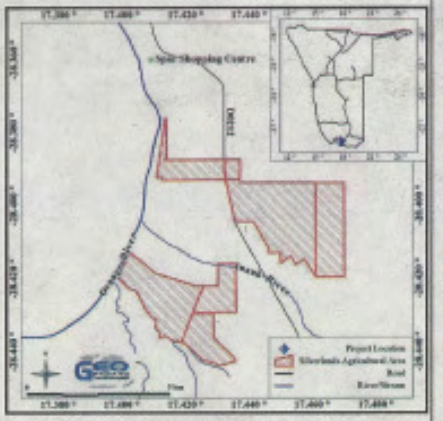
An ECC for the current and planned agricultural operations is required as per the Environmental Management Act No. 7 of 2007. As such, a Scoping Environmental Assessment Report and an Environmental Management Plan is proposed to be submitted to the Ministry of Environment and Tourism. Thereafter, a Detailed Assessment (inclusive of specialist input and an updated EMP) will be submitted in support of the application for an ECC. The entire assessment will be referred to as an ESIA.



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PUBLIC PARTICIPATION NOTICE
ENVIRONMENTAL ASSESSMENT
Silverlands Agricultural Project
Aussenkehr, Karas Region

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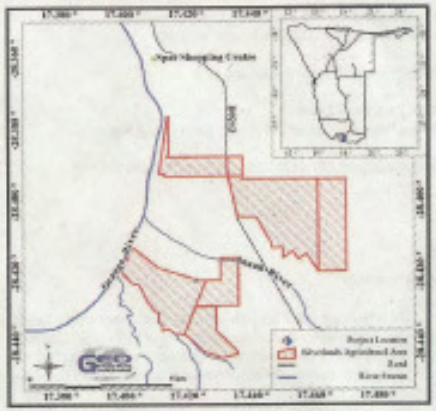

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Fax: +264-88626368
E-Mail: silverlands@thenamib.com

MATRIX CONSULTING SERVICES
CONSULTING ENGINEERS, PROJECT MANAGERS AND SCIENTISTS

VACANCIES

Senior Civil Engineer (Windhoek) X 1

Minimum requirements and skills:
- B.Sc -Civil /B.Tech(registered as Professional Engineer with ECN)
- Strong design experience years in design environment (Structures and Urban Services)
- Ability work independently and Mentor & Oversee junior engineers.
- Construction Site Supervision Skills
- Good Communication and Report Writing Skills
- Strong Knowledge of Engineering Softwares e.g. Proloze, AutoCAD/ Civil Designer /Civil 3D e.t.c
- Driver's License

Responsibilities
- Project Management, Tender Documentation, Contract Administration, Engineering Design & Cost Estimates, Engineering Designs, Liaison with the Clients & Contractors, Ensuring Quality Compliance.

Civil Engineer (Windhoek) X 1

Minimum requirements and skills:
- B.Sc -Civil /B.Tech (legible to register/registered with ECN)
- 1-4 years experience years in design environment (Structures and Urban Services)
- Driver's License
- Site Supervision Skills
- Good Communication Skills
- Strong Knowledge of Engineering Softwares e.g. Proloze, AutoCAD/ Civil Designer /Civil 3D

Responsibilities
- Design and Cost Estimates, Engineering Designs, Construction supervision (Structures, Civil works, Roads e.t.c), Liaison with the clients & Contractors, Ensuring Quality compliance

Interested candidates must send their comprehensive resume and qualifications in PDF format to **info@matrixconsultingcc.com**
Tel: 061 224197; **Closing Date: 23 DEC 2015**

Please quote the job title you are interested in when applying

DEATH NOTICE

DR. HENDRIK GERT PLATT

Passed away on 28th November 2015.

Memorial Service to be held on

Wednesday 2 December at 19:00
at V.G.Kerk Rehoboth
Friday, 4 December at 19:00 at V.G.Kerk Windhoek

Funeral Service to be held on

Saturday 5 December at 07:30
Kleine Kuppe 34 Otjikoto Street
at 09h00 at V.G.Kerk Windhoek

Contact Numbers:

081 220 6344 / 081 256 0808

Republic of Namibia

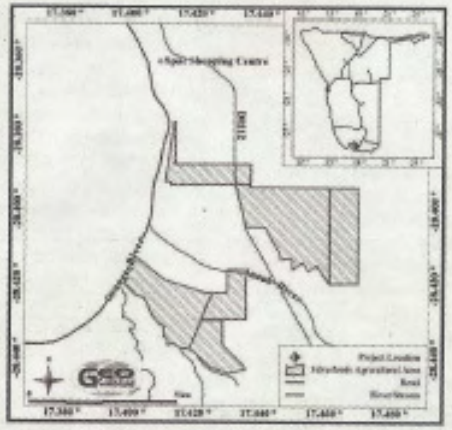
MINISTRY OF INDUSTRIALIZATION, TRADE AND SME DEVELOPMENT
Request for Expression of Interest to Conduct a Feasibility Study on a National Single Window

PUBLIC PARTICIPATION NOTICE
ENVIRONMENTAL ASSESSMENT
Silverlands Agricultural Project
Aussenkehr, Karas Region

Silverlands Vineyards (Pty) Ltd and Karee Investments 162 (Pty) Ltd (together referred to as "Silverlands") are jointly applying for an Environmental Clearance Certificate ("ECC") for existing and proposed agricultural operations in Aussenkehr, Namibia.

Silverlands recently invested into the table grape sector in Aussenkehr and has committed to operate their farms in line with Namibian law as well as their Responsible Investment Code ("RIC"). The RIC ties Silverlands to the International Finance Corporation Performance Standards. Therefore an ECC application will be conducted to include an Environmental and Social Impact Assessment ("ESIA") for the existing 300 ha of vineyards and the proposed expansion of 1,000 ha on which a combination of vineyards and vegetables/seed vegetables may be produced.

An ECC for the current and planned agricultural operations is required as per the Environmental Management Act No. 7 of 2007. As such, a Scoping Environmental Assessment Report and an Environmental Management Plan is proposed to be submitted to the Ministry of Environment and Tourism. Thereafter, a Detailed Assessment (inclusive of specialist input and an updated EMP) will be submitted in support of the application for an ECC. The entire assessment will be referred to as an ESIA.



All Interested and Affected Parties are invited to register with the environmental consultant. Background information can be requested and any comments, issues or concerns related to the project communicated with Geo Pollution Technologies.

All comments and concerns must be submitted to Geo Pollution Technologies. For further information regarding the project and/or to register as an Interested and Affected Party, please contact:

Quentz Bosman
Geo Pollution Technologies (Pty) Ltd.
Telephone: +264-61-237411
Fax: +264-88626368
E-Mail: silverlands@thenamib.com

TENDER NOTICE

TENDER NO: SSC 11/2015
DESCRIPTION: SUPPLY AND DELIVERY OF NEW VEHICLES: 2x PICK-UP S/C 4X4, 1X D/CAB 4X4, 1X UTILITY BAKKIE & 4x SEDAN VEHICLE
CLOSING DATE: FRIDAY, 18 DECEMBER 2015
CLOSING TIME: 12:00

Tender documents are available at the Cashier, Social Security Commission House, and Windhoek at a non-refundable levy of **N$200.00** per copy.

NB: **Envelopes should be marked clearly:**
SSC 11/2015: Supply and delivery of new vehicles
Closing Date: 18 December 2015
Closing Time: 12h00

Enquiries: Mr A Carew at (061) 2807009 / Mr K Kisting (061) 280 7045

TENDER NO: SSC 12/2015
DESCRIPTION: ASSET/LIABILITY MODELING EXERCISE
CLOSING DATE: FRIDAY, 18 DECEMBER 2015
CLOSING TIME: 12:00

SSC hereby invites suitably qualified persons or firms to perform an Asset/Liability Modelling (ALM) exercise on its Funds. The ALM exercise will be on the following Funds:

- Maternity, Sick and Death Benefit Fund (MSD)
- Employees' Compensation Fund (ECF) and

Tender documents are available at a non-refundable amount of N$200.00 per copy.
NB: Envelopes should be clearly marked with:
SSC 12/2015: Asset/Liability Modeling Exercise
Closing Date: 18 December 2015
Closing Time: 12h00

Enquiries: Mr. VT Kavari at (061) 2807003 / Mrs. Salmo Neixo at (061) 2807051

TENDER NO: SSC 03/2015
DESCRIPTION: RENDERING OF ACRCHIVE STORAGE SERVICE TO SOCIAL SECURITY COMMISSION; WINDHOEK FOR A PERIOD OF FIVE (5) YEARS
CLOSING DATE: FRIDAY, 18 DECEMBER 2015
CLOSING TIME: 12:00

Tender documents are available at the Cashier, Social Security Commission House, and Windhoek at a non-refundable levy of **N$350.00** per copy.

NB: **Envelopes should be marked clearly:**
SSC 03/2015: Rendering of Archive Storage Service to SSC, Windhoek for a period of five (5) years.
Closing Date: 18 December 2015
Closing Time: 12h00

Enquiries: Mr. W Cloete at (061) 2807002

Documents must be mailed to
The Executive Officer
Social Security Commission
Private Bag 13223
Windhoek

OR

Deposited in
The Tender Box at
Social Security Commission House
Cnr. A. Kloppers & J. Haupt Streets
Khomasdal, Windhoek

Vision: We envision a productive Namibian society enjoying comprehensive social protection.
Mission: To enhance the welfare of our members and beneficiaries by providing integrated social security benefits and services.

For more information: Call: +264 (0) 61 280 7104 or visit our at www.ssc.org.na or
Visit our offices at: Cnr A. Kloppers & Haupt Street, Khomasdal, Windhoek

Public Participation Notification: Environmental Assessment Silverlands Agricultural Project
Aussenkehr, Karas Region

Name & Surname	Organisation	Tel / Mobile	Email	Signature
J.G. Du Plessis	ORUA		duplessisjan@iway.na	
R. Kaber	Aurecon	081 257 8284	rainer.kaber@aurecongroup	
Leanne LeRoux	DQSES	+27843764841	~~leanne@dqses.co.~~ leanne.dqses@gmail.com	
VESNA VASILJEVIC	AUSSENKEHR FARMS		vesnavasil@gmail.com	
MILO VASILJEVIC	AUSSENKEHR FARMS	063 297094	meelovas@gmail.com	
Leen Droogendijk	D-Quality Survey	+31651784096	L.droogendijk@dqualitysurvey.com	
Simon Akwenye	AGRIBUSDEV-DRIP	081 280 4101 063-297604	skrevival@gmail.com	
Lize de Jager	Namibia Grape Company	063 297 570	cspa@namgrapes.com	
Boet Burger	Kaap Agri	063 297 425	boet.burger@kaapagri.com.na	
Antonie van Heerden	Cape Orchard Company	063-297068	antonie@iway.na	
G.H. de Kock	Cape Orchard Services	0825634399	ghdekock@grapealliance.co.za	
Arjan de Kock	" " "	0835648677	arjandekock@gmail.com	
Kobus Bothma	NGC Namibia Cape Pan	0811291814	kobus.csnam@gmail.com	

Name	Organisation
Client	
Kevin Liddle	Silver Street Capital (Farming in the Valley)
Estie Du Plessis	Silverlands
Julia Wakeling	Silverstreet Capital
Neighbouring area / business people / private individuals	
Oscar Mwayanale	Mwayanale Trading Enterprise cc
Horst Mutschler	Mutschler Consulting Services
Sonja Loots	National Botanical Research Institute
John Pallett	Southern African Institute for Environmental Assessment
Frank Lohnert	National Botanical Project / Namib Botanical Garden Project
Albert Calitz	AW Greenworks
B Vasiljevivc	Aussenkehr SPAR
E. Naude	Nature Parks Aussenkehr
E. Van Zyl	Manager SPAR
R. Brand	Aussenkehr
F. Rooi	Namibian Grape Company (Security living close to site)
Kobus Bothma	Capespan Namibia - Executive Director
Simon Akwenya	Agribus Dev - NDC Manager
Boet Burger	Kaap Agri
Juan Claasen	Norotshama River Resort
Elize van Zyl	Nature Park and Aussenkehr Facilities
Andre Brand	Navico - Farmers' Representative
Johnny de Jager	Nivex Enterprises
Braam Espach	Cape Orchard Company - Farm Manager
Albert Holtzhausen	Orange River Vineyard Investments
Jan Mostert	Exotic International
Wynand Simon	Navico - GM/Farm Manager
Nick de Goede	|Ai-|Ais/Richtersveld Transfrontier Park - SAN Parks - Park Manager
Hendrik Prins	|Ai-|Ais/Richtersveld Transfrontier Park - SAN Parks - Duty Manager
Ministry of Sport, Youth and National Service	
Alfred Ilukena	Permanent Secretary
Ministry of Urban & Rural Development (MURD)	
Mr A Muhongo	Karas Regional Council - Noordoewer Settlement Office
Paulus Ephraim	Karasburg Constituency - Councillor
Hon Lucia Basson	Karas Regional Council - Governor
MET	
Dr Malan Lindeque	Permanent Secretary
Manie le Roux	Chief Control Warden
Colgar Sikopo	Director: Regional Services and Parks Management
MAWF	

Name	Organisation
Abraham Nehemia	Acting Permanent Secretary
Other	
Linus Tobias	Orange-Fish Basin Management Committee (OFBMC) - Basin Support Officer
NP du Plessis	Namwater - Senior Environmentalist
Jolanda Murangi	Namwater - Environmental Scientist
Theo Shiyambi	Aussenkehr Community Committee - Secretary
Registered I&APs	
JG Du Plessis	ORUI
Rainer Kaber	Aurecon
Ilze Rautenbach	Aurecon
Leanne le Roux	DQSES
Vesna Vasiljevic	Aussenkehr Farms
Milo Vasiljevic	Aussenkehr Farms
Leen Droogendyk	D-Quality Survey
Simon Akwenye	Agribusdev-DRIP
Lize de Jager	Namibia Grape Company
Antonie van Heerden	Cape Orchard Company
GH De Kock	Cape Orchard Services
Arjan de Kock	Cape Orchard Services
Kobus Bothma	NGC Namibia / Capespan
Rosené Matthee	Creation Fruit (Pty) Ltd
Dr Antje Burke	EnviroScience
Wayne Handley	Ministry of Environment & Tourism - Acting Chief Warden for Karas Parks / MET member of ORASECOM
Josiah Mukutri	Outrun Investments CC
NamWater	
Mr Motete	NamWater Engineer

Appendix B: GPT Company Profile and Project Team CV's

GEO POLLUTION TECHNOLOGIES - NAMIBIA (PTY) LTD

COMPANY PROFILE

Geo Pollution Technologies is an environmental/geohydrological consultancy, employing some fifteen professionals in four major centres throughout Southern Africa. We offer a multi-disciplinary approach for the exploration, responsible utilisation, management & protection of water - one of Southern Africa's most valued natural resources. Our principal focus is soil, groundwater and marine water contamination studies, design and implementation of remedial technologies, environmental impact assessments, development of environmental management plans & environmental auditing.

Our client base includes a variety of industries including mining, petroleum/petrochemical, heavy engineering, agricultural, governmental and non-governmental organisations, auditing bodies & other consulting companies.

We strive to provide our customers with a cost effective service, using internationally accepted methods that ensure professional quality and integrity. We believe that an amicable compromise between economic development and environmental concerns is always possible, and can be achieved through a thorough understanding of both our client's needs and the requirements of the environmental authorities.

We work according to strict oil industry accredited permit to work systems for the protection of health, safety and the environment.

GEO-POLLUTION TECHNOLOGIES ***GAUTENG***	**GEO-POLLUTION TECHNOLOGIES** ***BOTSWANA***	**GEO-POLLUTION TECHNOLOGIES** ***NAMIBIA***
GEO-POLLUTION TECHNOLOGIES ***CAPE TOWN***		

NAMIBIA
Unit 30
Hyper City
Maxwell Str
Windhoek

P.O. Box 11073
Windhoek

Mr. P. Botha
T(+264 61) 25 7411
F(+264) 88626368
C(+264 81) 1220082

GAUTENG
36 Ingersol Street
Lynnwood Glen
Pretoria 0081

P.O. Box 38384
Garsfontein East
0060

Dr. VDA. Coetsee
T(+27 12) 348 0680
F(+27 12) 348 9928

CAPE TOWN
Dover House
42 Orange Street
Gardens, Cape Town
8001

P.O. Box 8442
Roggebaai
8012

Mr. W. van Biljon
T(+27 21) 422 1075
F(+27 21) 422 1079

BOTSWANA
Plot No. 22147
Gaborone West
Industrial

Mnr WJ van Biljon
T(+27 82) 824 7679

Geo Pollution Technologies offers its expertise in:

Marine Investigations

- Sea floor sediment sampling
- Water sampling and monitoring
- Pollution identification and analysis interpretation
- Continuous water quality probes with real-time data connection

Hydrocarbon Pollution Studies

- LNAPL & DNAPL site investigation
- Soil vapour surveys
- Spill quantifications
- Rehabilitation/Remediation

Water Supply

- Rural or urban water supply
- Professional borehole siting
- Borehole design & construction
- Borehole & aquifer tests
- Management of groundwater resources
- Recharge assessment & quantification

Environmental Impact Studies

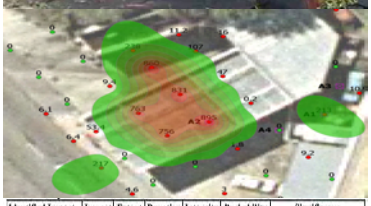
- Strong focus on pollution aspects
- EIA (Environmental Impact Assessment)
- EMPR (Environmental Management Program)

Groundwater Risk Quantification

- Risk based corrective action (RBCA)
- Monte Carlo risk assessments
- Delineation of borehole protection zones

Remediation of Organic Pollutants

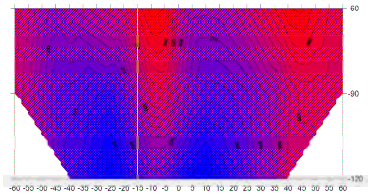
- Bio-venting
- Monitoring natural attenuation
- Soil flushing
- Soil washing
- Land-farming (bio-treatment)
- Soil vapour extraction
- Vacuum enhanced recovery
- Granulated activated carbon
- Oxidation

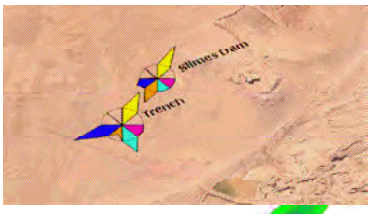


Identified Impact	Impact Type	Extent	Duration	Intensity	Probability	Significance	
						Unmitigated	Mitigated
Dust	NEG	I	ST	M	P	M	L
Noise	NEG	I	ST	M	P	L	L
Safety and Security	NEG	I	ST	L	P	M	L
Traffic	NEG	L	ST	M	P	L	L
Nuisance	NEG	I	ST	L	LP	L	L
Groundwater	NEG	L	LT	L	P	L	L
Generation of waste	NEG	I	ST	M	P	M	L
Economic Impacts	POS	R	ST	L	LP	L	L

Groundwater Impact Quantification

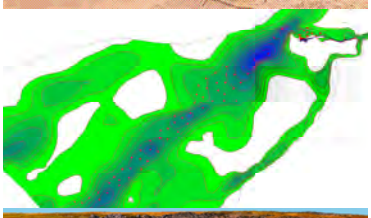
- Waste disposal sites
- Oxidation dams
- Slimes dams
- Evaporation dams
- Rock discard dumps
- Mine dewatering
- Industrial soil and groundwater contamination studies





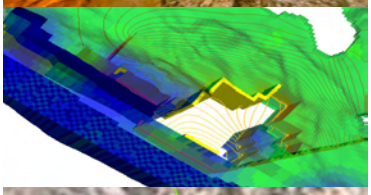
Numerical Modelling

- Groundwater flow & Transport modelling
- Modelling natural attenuation
- Aquifer hydraulics i.e.mine dewatering & well field design
- Multi phase modelling



Hydrochemistry

- Hydrochemical assessments and modelling
- Multivariate statistics, geostatistics & data management
- Hydrogeochemical modelling (equilibrium & kinetic)
- Pyrite oxidation problems



Regional Studies

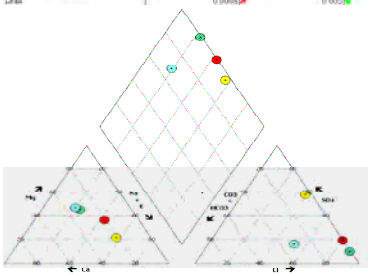
- Catchment management plans
- Regional parameter estimations (e.g. recharge)
- National groundwater studies

Environmental Information Management

- Geographic information systems (GIS)
- Database design & development

Geophysical

- Assessment of the geometry & spatial extent of aquifers using a variety of geophysical techniques
- Borehole siting
- Geophysical mineral exploration & engineering geophysics
- Use of geophysical techniques in contamination studies
- Subsurface detail mapping (ground penetrating radar)
- Frequency Domain EM, Ground Penetrating Radar, Resistivity, Self Potential, Magnetometer equipment in-house.



Geo Pollution Technologies provides much needed consultancy services in the fields of Pollution Assessments, Environmental Management Systems (Soil, groundwater and marine auditing), Environmental Impact Assessments, Risk Based Corrective Action (RBCA), Site Evaluations, Environmental Database Management and Petroleum Hydrocarbon as well as other contamination studies.

Our current client base includes, but is not limited to:

- Anglogold Ashanti
- Boskalis
- Department of Water Affairs
- Elgin Brown Hammer
- Namcor
- Namdeb
- Namibia Airports Company
- Namport
- Namwater
- Ohorongo Cement
- Rössing Uranium
- SABMiller
- The oil industry (incl. BP, Caltex (Chevron), Engen, Namcor, Puma, Shell, Total)
- Valecia Uranium
- West Australia Metals
- West Port Resources

ENVIRONMENTAL ASSESSMENT PRACTITIONER **Pierre Botha**

Pierre Botha is the Managing Director of Geo Pollution Technologies, Namibia. Mr. Botha has excellent experience and knowledge in Environmental Impact Assessments, groundwater pollution assessment, groundwater exploration, resource evaluation, urban and rural water supply, groundwater management, monitoring and hydrochemistry. He gained most of his experience in Namibia and is involved in the Namibian environmental industry since 1992.

Mr Botha's experience in the environmental field has been gained from various projects ranging from groundwater exploration, groundwater management and modelling, environmental impact assessments, pollution mapping and rehabilitation to health risk evaluations. Mr Botha conducted various environmental projects for the oil industry.

CURRICULUM VITAE PIERRE BOTHA

Name of Firm	:	Geo Pollution Technologies (Pty) Ltd.
Name of Staff	:	PIERRE BOTHA
Profession	:	Hydrogeologist / Environmental Assessment Practitioner
Years' Experience	:	22
Nationality	:	Namibian
Position	:	Managing Director
Specialisation	:	EIA, EMP & Hydrogeology
Languages	:	Afrikaans – speaking, reading, writing – excellent English – speaking, reading, writing – excellent

EDUCATION AND PROFESSIONAL STATUS:

B.Sc. Geology & Geography	:	University of OFS, 1992
B.Sc. (Hons.)(*cum laude*) Geohydrology/Hydrology	:	University of OFS, 1994

PROFESSIONAL SOCIETY AFFILIATION:

Environmental Assessment Professionals of Namibia (EAPAN) – *President 2014 - Vice President 2012, 2013*
Hydrogeological Association of Namibia (HAN)
Geological Association of Namibia

AREAS OF EXPERTISE:

Knowledge and expertise in:

- environmental impact assessments
- project management
- soil vapour surveys
- risk based corrective action analyses
- bioremediation
- monitoring, mapping and evaluation of groundwater pollution
- hydrochemistry studies
- groundwater modelling
- groundwater monitoring
- hydrocensus
- hydrogeological data evaluation and interpretation
- groundwater exploration and resource evaluation
- geophysical interpretations (Ground Penetrating Radar, Electrical Resistivity, Electromagnetic & Magnetic)
- urban and rural water supply
- groundwater management
- borehole siting, drilling and test pumping supervision
- aquifer testing

EMPLOYMENT:

1998-Date	:	Geo Pollution Technologies (Pty) Ltd
1995	:	Parkman Namibia (Groundwater Consulting Services) - Hydrogeologist
1994	:	Institute for Groundwater Studies, University of the Orange Free State - Hydrogeologist
1992-1993	:	Groundwater Consulting Services - Field Geologist
1988	:	Tsumeb Corporation Ltd - Student geologist

PUBLICATIONS:

Contract reports	: +400
Publications	: 1

ENVIRONMENTAL ASSESSMENT PRACTITIONER **Quzette Bosman**

Quzette Bosman has 8 years' experience in the Impact Assessment Industry, working as an Environmental Assessment Practitioner and Social Assessment practitioner mainly as per the National Environmental Legislation sets for South Africa and Namibia. Larger projects have been completed in terms of World Bank and IFC requirements. She studied Environmental Management at the Rand Afrikaans University (RAU) and University of Johannesburg (UJ), including various Energy Technology Courses. This has fuelled a passion towards the Energy and Mining Industry with various projects being undertaken for these industries. Courses in Sociology has further enabled her to specialize in Social Impact Assessments and Public Participation. Social Assessments are conducted according to international best practise and guidelines. Work has been conducted in South Africa, Swaziland and Namibia.

CURRICULUM VITAE QUZETTE BOSMAN

Name of Firm	:	Geo Pollution Technologies (Pty) Ltd.
Name of Staff	:	QUZETTE BOSMAN
Profession	:	Social Impact Assessor / Environmental Assessment Practitioner
Years' Experience	:	8
Nationality	:	South African
Position	:	Senior Environmental Consultant
Specialisation	:	ESIA & ESMP; SIA
Languages	:	Afrikaans – speaking, reading, writing – excellent English – speaking, reading, writing – excellent

EDUCATION AND PROFESSIONAL STATUS:

BA	Geography & Sociology	:	Rand Afrikaans University, 2003
BA	(Hons.) Environmental Management	:	University of Johannesburg, 1004

PROFESSIONAL SOCIETY AFFILIATION:

Namibian Environment and Wildlife Society
International Association of Impact Assessors South Africa (IAIA SA)
Member 2007 - 2012
Mpumalanga branch Treasurer 2008/2009

OTHER AFFILIATIONS
Mkhondo Catchment Management Forum (DWAF): Chairperson 2008-2010
Mkhondo Water Management Task Team (DWAF): Member 2009

AREAS OF EXPERTISE:

Knowledge and expertise in:

- environmental impact assessments
- project management
- social impact assessment
- social management planning
- community liaison and social monitoring
- public participation / consultation
- social risk management
- water use licensing
- environmental auditing and compliance
- environmental monitoring
- strategic environmental planning

EMPLOYMENT:

2015 - Present	:	Geo pollution Technologies – Senior Environmental Practitioner
2014-2015	:	Enviro Dynamics – Senior Environmental Manager
2010 - 2012	:	GCS – Environmental Manager (Mpumalanga Office Manager)
2007 - 2009	:	KSE-uKhozi - Technical Manager: Environmental
2006 -2007	:	SEF – Environmental Manager
2004 - 2005	:	Ecosat – Environmental Manager

PUBLICATIONS:

Contract reports	: +150
Publications	: 1