APP-005741

AGRICULTURAL AND HOSPITALITY ACTIVITIES ON FARM CAMPBELLSDREI, HARDAP REGION

UPDATED ENVIRONMENTAL MANAGEMENT PLAN

Assessed by:

Assessed for:

Campbellsdrei Property Investments (Pty) Ltd

August 2024

Project:	**AGRICULTURAL AND HOSPITALITY ACTIVITIES ON FARM CAMPBELLSDREI, HARDAP REGION: UPDATED ENVIRONMENTAL MANAGEMENT PLAN**	
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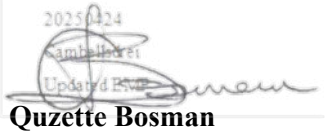
Report Approval	 **Quzette Bosman** Social and Environmental Assessment Practitioner	

I _____ acting as the Proponent's representative of Campbellsdrei Property Investments (Pty) Ltd, hereby confirm that the project description contained in this report is a true reflection of the information which the Proponent provided to Geo Pollution Technologies. All material information in the possession of the proponent that reasonably has or may have the potential of influencing any decision or the objectivity of this assessment is fairly represented in this report and the report is hereby approved.

Signed at Windhoek on the 22nd day of April 2025.

_____ 2023/0019

Campbellsdrei Property Investments (Pty) Ltd Business Registration/ID Number

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1 INTRODUCTION

Campbellsdrei Property Investments (Pty) Ltd (the Proponent) requested Geo Pollution Technologies (Pty) Ltd to update their environmental management plan for their existing agricultural activities and proposed hospitality activities on farm Campbellsdrei FMM/00137, Hardap Region (Figure 1-1). The Proponent currently irrigates 21 ha of lucerne and 18 ha of table grapes. Irrigation is from six production boreholes by means of centre pivots and micro-irrigation systems. The proposed hospitality facility will include guestrooms, a campsite, and an air-strip with related facilities. Responsible hunting and a range of activities like cycling and birding are also part of the plans.

In order to comply with Namibian legislation, and to adhere to all codes and standards applied in their operations, the Proponent wishes to apply for a renewal and transfer of their ECC for the farm and hospitality operations. In support of the ECC renewal and transfer application, an updated EMP outlining any additional environmental management procedures to be implemented by the Proponent, will be submitted to the Ministry of Environment, Forestry and Tourism (MEFT). The updated EMP will provide management options to ensure environmental impacts of the farm are continually minimised. The environment being defined in the Environmental Management Act as “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, paleontological or social values”.

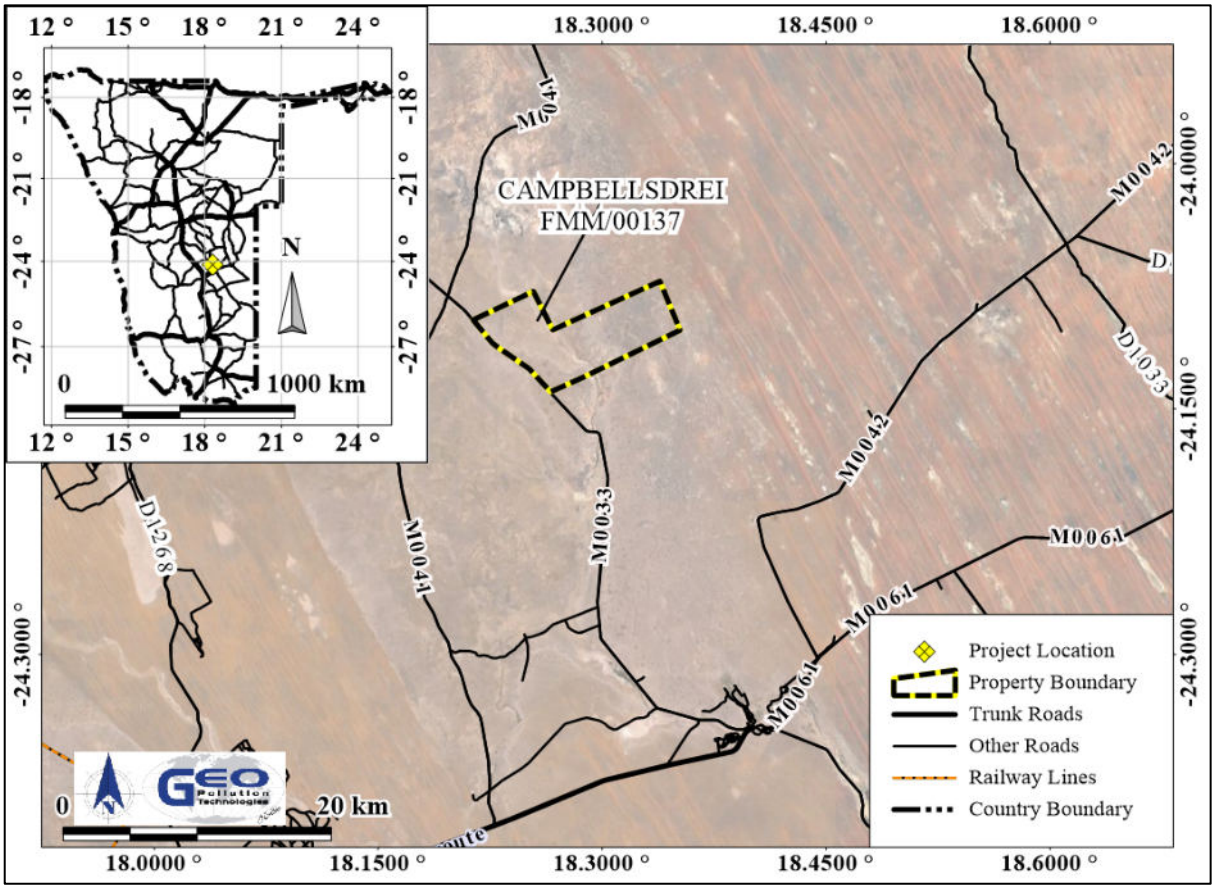

Figure 1-1 Project location

The EMP is a tool used to take pro-active action by addressing potential problems before they occur. This limits potential future corrective measures that may need to be implemented and allows for application of mitigation measures for unavoidable impacts. This document should continue to be used as an on-site reference document during all phases (planning, construction (care and maintenance), operations and decommissioning) of the farm. All monitoring and records kept should be included in a report to ensure compliance with the EMP. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken. A Health, Safety, Environment

and Quality policy as well as Environmental (HSEQ) Policy could be used in conjunction with the EMP. Operators and responsible personnel must be taught the contents of these documents. Relevant regulations and guidelines must be adhered to and monitored regularly as outlined in the EMP.

The updated EMP will be used to apply for the renewal and transfer of the existing ECC in compliance with Namibia's Environmental Management Act (Act No 7 of 2007).

Benefits of the existing and proposed activities on Campbellsdrei include:

- Generation of income contributing to the national treasury,
- Increasing tourism options in the area will benefit the tourism industry of the region by providing more incentives to visit the area,
- Offer new Employment, and transfer of skills and knowledge, and technological development,
- Support for economic resilience in the area through diversified business activities and opportunities.

2 SCOPE

The scope of the EMP is to:

- To update the potential environmental impacts emanating from the operational and possible decommissioning activities of the agriculture activities,
- To update existing and identify new management actions which could mitigate the potential adverse impacts to acceptable levels,
- Comply with the requirements of EMA,
- Provide sufficient information to the relevant competent authority and MEFT to make an informed decision regarding the renewal of the ECC for the operations and possible decommissioning of the facility.

3 METHODOLOGY

The following methods were used to update the EMP and investigate the potential impacts on the social and natural environment due to the construction and operations of the facility:

- Baseline information about the site and its surroundings was updated using secondary information.
- Potential environmental impacts emanating from the operations and decommissioning of the facility were updated, as were possible enhancement measures for positive impacts and mitigation / preventative measures for negative impacts.
- The updated EMP was prepared to be submitted to the MEFT.

4 ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

All projects, plans, programmes and policies with potential adverse impacts on the environment require an environmental assessment, as per the Namibian legislation. This promotes protection of the environment as well as sustainable development. The legislation and standards provided in Table 4-1 to Table 4-3 govern the environmental assessment process in Namibia, and are relevant to the assessed development.

Table 4-1 Namibian law applicable to the development

Law	Key Aspects
The Namibian Constitution	♦ Promotes the welfare of people ♦ Incorporates a high level of environmental protection ♦ Incorporates international agreements as part of Namibian law
Environmental Management Act Act No. 7 of 2007, Government Notice No. 232 of 2007	♦ Defines the environment ♦ Promotes sustainable management of the environment and the use of natural resources ♦ Provides a process of assessment and control of activities with possible significant effects on the environment
Environmental Management Act Regulations Government Notice No. 28-30 of 2012	♦ Commencement of the Environmental Management Act ♦ List activities that requires an environmental clearance certificate ♦ Provides Environmental Impact Assessment Regulations
Namibia Tourism Board Act **Act no. 21 of 2000, Government Notice 261 of 200, 2000**	♦ Provides for the registration and grading of accommodation establishments ♦ Provides for the declaration of any sector of the tourism industry as a regulated sector and for the registration of businesses falling within a regulated sector ♦ Provides regulations and minimum requirements pertaining to o Levies payable o Registrations of regulated businesses o Registrations of accommodation establishments
Accommodation Establishments and Tourism Ordinance 20 of 1973	♦ Consolidates and amend the laws relating to accommodation establishments and tourism and provide for the establishment of tourist recreation areas and incidental matters ♦ Provides for regulations of tourism establishments ♦ Numerous amendments and repeals
Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act Act No. 36 of 1947; Government Notice No. 1239 of 1947	♦ Governs the registration, importation, sale and use of fertilizers, farm feeds, agricultural remedies and stock remedies ♦ Various amendments and regulations
Seed and Seed Varieties Act 23 of 2018 Act No. 23 of 2018, Government Notice No. 368 of 2018	♦ Provides for restrictions on the importation of seed ♦ Not in force yet
Water Resources Management Act Act No. 11 of 2013	♦ Provides for management, protection, development, use and conservation of water resources ♦ Prevention of water pollution and assignment of liability

Law	Key Aspects
Forest Act (Act 12 of 2001, Government Notice No. 248 of 2001)	♦ Makes provision for the protection of the environment and the control and management of forest fires ♦ Provides for the licencing and permit conditions for the removal of woody and other vegetation as well as the disturbance and removal of soil from forested areas
Forest Regulations: Forest Act, 2001 Government Notice No. 170 of 2015	♦ Declares protected trees or plants ♦ Issuing of permits to remove protected tree and plant species
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 in Namibia
Biosafety Act Act No. 7 of 2006	♦ Regulate activities involving the research, development, production, marketing, transport, application and other uses of genetically modified organisms and specified products derived from genetically modified organisms ♦ Prohibits planting of genetically modified organisms without registration
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)
Local Authorities Act Act No. 23 of 1992, Government Notice No. 116 of 1992	♦ Defines the powers, duties and functions of local authority councils
Public Health Act Act No. 36 of 1919	♦ Provides for the protection of health of all people
Public and Environmental Health Act Act No. 1 of 2015, Government Notice No. 86 of 2015	♦ Provides a framework for a structured more uniform public and environmental health system, and for incidental matters ♦ Deals with integrated waste management including waste collection disposal and recycling, waste generation and storage, and sanitation
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)
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

Law	Key Aspects
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
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

Table 4-2 Relevant multilateral environmental agreements

Agreement	Key Aspects
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
Charter of the Regional Tourism Organisation of Southern Africa (RETOSA), 1997	♦ Development of tourism through effective marketing of the Region in collaboration with the public and private sector ♦ To facilitate, encourage and assist in the development of legal and ethical tourism throughout the Southern African Region taking due consideration of the overall development of the people, the Region and the Region's natural and cultural resources
Protocol on the Development of Tourism in SADC, 1998	♦ The Protocol sets out SADC's objective to build upon the region's potential as a tourist destination
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
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
International Treaty on Plant Genetic Resources for Food and Agriculture, 2001	♦ Promote conservation, exploration, collection, characterization, evaluation and documentation of plant genetic resources for food and agriculture ♦ Promote the sustainable use of plant genetic resources for food and agriculture

Table 4-3 Standards or codes of practise

Standard or Code	Key Aspects
GLOBALG.A.P.	♦ Farm assurance program, translating consumer requirements into good agricultural practice
South African National Standards (SANS)	♦ The Petroleum Products and Energy Act prescribes SANS standards for the construction, operations and demolition of petroleum facilities ♦ SANS 10089-3:2010 is specifically aimed at storage and distribution of petroleum products at fuel retail facilities and consumer installations. o Provide requirements for spill control infrastructure
Department of Water Affairs and Forestry Code of Practice: Volume 1 Septic Tank Guidelines (General Guidelines July 2008)	♦ It defines french drains and septic tanks ♦ Gives location consideration and tank design guidance

	♦ Septic tanks are- not allowed between two and five meters from a building and or a boundary ♦ It specifically states that in rocky areas secondary treatment must be provided for soak-aways

The agricultural and related activities listed as activities requiring an environmental clearance certificate are (Government Notice No. 29 of 2012):

Section 4: Forest Activities

- 4. The clearance of forest areas, deforestation, afforestation, timber harvesting or any other related activity that requires authorisation in terms of the Forest Act, 2001 (Act No. 12 of 2001) or any other law: Some additional clearing of bush /timber may be required for the establishment of the lodge, camp sites, related infrastructure as well as managing cleared areas for crop production.

Section 7: Agriculture and Aquaculture Activities

- 7.5 Pest control: The Proponent uses conventional pest control products as approved by the Namibian government. These may include herbicides and pesticides and will vary according to season and pests encountered during a year.

Section 8 of Government Notice No.29 of 2012: Water Resource Developments

- 8.1 The abstraction of ground or surface water for industrial or commercial purposes: Abstraction of groundwater for the commercial production of crops.
- 8.6 Construction of industrial and domestic wastewater treatment plants and related pipeline systems: French drains for domestic use and a wastewater treatment plant will be required for the tourism accommodation.
- 8.7 Irrigation schemes for agriculture excluding domestic irrigation: No *irrigation scheme* will be developed, however, *irrigation systems* are used on the farm. Irrigation on the farm does not contribute to /or is part of any irrigation scheme as proclaimed by the Namibian Government.

Section 9. Hazardous Substance Treatment, Handling and Storage

- 9.1 The manufacturing, storage, handling or processing of a hazardous substance defined in the Hazardous Substances Ordinance, 1974: Planned consumer fuel installation.
- 9.2 Any process or activity which requires a permit, licence or other form of authorisation, or the modification of or changes to existing facilities for any process or activity which requires an amendment of an existing permit, licence or authorisation or which requires a new permit, licence or authorisation in terms of a law governing the generation or release of emissions, pollution, effluent or waste: Planned consumer fuel installation.
- 9.3 Construction of filling stations or any other facility for the underground and aboveground storage of dangerous goods, including petrol, diesel, liquid petroleum gas or paraffin: Planned consumer fuel installation.

Section 10. Infrastructure

- 10.1(d) Airports and airfields: Planned construction of an airfield.

Section 11. Other Activities

- 11.2 Construction of cemeteries, camping, leisure and recreation sites: Planned camping site.

5 IMPLEMENTATION OF THE EMP

The sections below outline the management of the environmental elements that may be affected by the activities associated with the various phases of the facility. These phases are as follows:

- Planning Phase
- Care and Maintenance Phase
- Operational Phase
- Decommissioning Phase

The EMP is a living document that must be prepared in detail, and regularly updated, by the Proponent as the project progresses and evolves. Impacts addressed and mitigation measures proposed are seen as minimum requirements which have to be elaborated on where appropriate. Delegation of mitigation measures and reporting activities should be determined by the Proponent and included in the EMP.

All monitoring results must be reported on as indicated. Reporting is important for any future renewals of the (ECC) and must be submitted to the Ministry of Environment, Forestry and Tourism. Renewal of ECC will require bi-annual reports based on the monitoring prescribed in this EMP.

Various potential and definite impacts will emanate from the operations, care and maintenance, and decommissioning phases. The majority of these impacts can be mitigated or prevented. The impacts as well as prevention and mitigation measures are listed below.

5.1 PLANNING

During the phases of planning for the operations, maintenance / construction and decommissioning phases of the farm, it is the responsibility of Proponent to ensure they are and remain compliant with all legal requirements. The Proponent must also ensure that all required management measures are in place prior to, and during all phases, to ensure potential impacts and risks are minimised. The following actions are recommended for the planning phase and should continue during various other phases of the project:

- Ensure that all necessary permits from the various ministries, local authorities and any other bodies that governs the operations, maintenance / construction and decommissioning activities remains valid. These include a consumer fuel installation certificate, water abstraction licence and effluent disposal permit.
- Ensure all appointed contractors and employees enter into an agreement, which includes the EMP. Ensure that contractors, sub-contractors, employees and all personnel present on site understand the contents of the EMP.
- Make provisions to have a Health, Safety and Environmental Coordinator to implement the EMP and oversee occupational health and safety as well as general environmental related compliance at the site.
- Make provision for a community liaison officer to deal with complaints.
- Have the following emergency plans, equipment and personnel on site, where reasonable, to deal with all potential emergencies:
    - EMP / risk management / mitigation / emergency response plan and health safety and environment (HSE) manuals;
    - Adequate protection and indemnity insurance cover for incidents;
    - Procedures, equipment and materials required for emergencies.
- Establish and maintain a fund for future ecological restoration of the project site should project activities cease and the site is decommissioned or when environmental damage is caused during operations and environmental restoration or pollution remediation is required.
- Establish and / or maintain a reporting system to report on aspects of operations, maintenance / construction, and decommissioning as outlined in the EMP.
- Keep monitoring reports on file for bi-annual submission to MEFT in support of environmental clearance certificate renewal applications. This is a requirement set by MEFT.
- Appoint a specialist environmental consultant to update the EA and EMP and apply for renewal of the environmental clearance certificate prior to expiry.

5.1.1 Increased Crop Yield

The primary result of irrigation, is increased crop yields when compared to dryland cropping. Availability of water through irrigation reduces the risk of crop failure and increases realisation of crop yield potential. However, in the instances of table grape and lucern, dry-land cultivation is not possible at the project location. Irrigation is therefore crucial for return on investments made in the form of for example infrastructure and fertilizers. Lucern production supports the livestock industry as a high quality feed for animals especially in times of drought. Produce and crop yields are of importance for the larger agricultural sector having benefits to National food security and/ or export revenue. Organic produce has a niche market and a higher local and export value. An increase in export earnings is desirable in Namibia for financing of imports of basic and essential capital goods. However, over supply of any given produce should be avoided.

Desired Outcome: Maximum contribution to the food security and economy of Namibia. Provide a positive contribution to the trade balance of Namibia by reducing the amount of imported produce and maximising possible exports.

Actions

Enhancement:

- Namibian contractors, consultants and service providers to be employed as far as possible.
- Liaison with regional and national governmental agencies through appropriate financial and social responsibility reporting.
- Continuous improvement to maximise sustainability of the farm.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Communication records with governmental agencies.

5.1.3 Change in Land Use and Earning Potential

The farm, including all infrastructure, was left derelict and in a state of disrepair by previous management and owners. The farm was not functioning as intended with regards to earning potential and contributions to the agricultural sector of Namibia. Neither were any people employed on the farm. Change in land utilisation and related economic productivity was initiated with the construction phase. Construction and operational activities have seen the rehabilitation and clearing of the property from health and environmental hazards. The current land use has lead to revenue generation and contribution to the local, regional and national economy. The earning potential of the farm area increased significantly. In addition, the flow of revenue was increased by employment, purchasing of goods and use of services. The impact is foreseen to continue having a positive impact on the economic sphere of the environment.

The related economic productivity of the current land use, will reach its full potential during the operational phase while the decommissioning phase will not share in such impact. However no post-closure land use has been identified yet and therefore the impact and related management and enhancement measures should be revisited closer to the decommissioning phase.

Desired Outcome: Contribution to local and national treasury as well as sustaining a stable earning potential for employees and industry.

Actions

Enhancement:

- The Proponent must employ local Namibians where possible.
- Investigate profitable post-closure land use possibilities.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Ensure all taxes and governmental levies (where required) are paid.
- All social security and related documentation kept on file.
- Financial Auditing

5.1.5 Skills and Development

During the operations and maintenance / construction phases, some training is provided to a portion of the workforce to allow them to conduct certain tasks according to the required standards. Skills are periodically transferred to an unskilled workforce for general tasks. Such skills are over and above the vocational skill(s) each permanent employee on the farm has. The skilled workforce ensures higher earning potential. Development of people and technology are key to the Proponent as well as to economic development of the country.

The Proponent plans to operate a lodge and camping facility, which will also cater for international tourists. The establishment will employ Namibians and contribute to their exposure of international cultures and the international service industry. Employees in the tourism industry require a different skillset.

Desired Outcome: To see an increase in skills of local Namibians, as well as development and technological advancements in the agricultural industry.

Actions

Enhancement:

- Sourcing of employees and contractors must first be at local level and if not locally available, regional or national options should be considered. Deviations from this practice must be justified.
- Skills development and improvement programs must be made available as identified during performance assessments.
- Inform employees about parameters and requirements for references upon employment.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Keep records of all training provided.
- Ensure that all training is certified or managerial references provided (proof provided to the employees) inclusive of training attendance, completion and implementation.

5.1.6 Revenue Generation and Employment

Skilled and unskilled labour are required for the operations and maintenance / construction activities associated with the farm. Employment for the land-poor and landless increases due to the labour-intensive nature of infrastructure construction and its subsequent maintenance, as well as increased labour demand from intensified crop cultivation. Revenue is generated through the sale of agricultural products on national and international markets.

Desired Outcome: Contribution to national treasury and provision of employment to local Namibians.

Actions

Enhancement:

- The Proponent must employ local Namibians where possible.
- If the skills exist locally, employees must first be sourced from the town, then the region and then nationally.
- Deviations from this practice must be justified.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Summary report based on employee records.

5.1.7 Demographic Profile and Community Health

Farming activities relies on labour. All labourers for the initial agricultural aspects are housed on site. Similarly all labourers to be employed at the lodge and camping facility will be accommodated on site. No large change in the demographic profile of the local community is thus expected. However, jobseekers migrating to the area, especially during the harvesting season of table grapes, may lead to increased unemployment and expansion of informal settlements around Stampriet. Here, factors such as communicable disease like HIV/AIDS as well as alcoholism/drug abuse may thrive. In such instances gender based violence have been known to occur. These are typically aggravated with an influx of seasonal workers, and possible foreign construction teams and contractors. An increase in foreign people in the area, linked to unemployment, may potentially increase the risk of criminal and socially / culturally deviant behaviour. None of these potential impacts are directly linked to the project and is rather considered to be in indirect and cumulative impact.

Increases in standing water associated with irrigation, can serve as a breeding-ground for disease carrying vectors including mosquitos. However, the area has one of the highest evaporation rates in southern Africa and it is highly unlikely that operations will increase the existing habitats of such disease carrying vectors. Labourers and consumers can be exposed to harmful substances such as fertilizers and pesticides (if used).

Desired Outcome: To prevent the occurrence of social ills and prevent the spread of diseases such as HIV/AIDS. Prevention of exposure to harmful chemical elements.

Actions:

Prevention:

- Employ only local people from the area, deviations from this practice should be justified.
- Adhere to all local authority by-laws relating to environmental health, which includes, but is not limited to, sanitation requirements.
- If pesticides are considered, they should be applied responsibly and according to instructions.

Mitigation:

- Educational programmes for employees on various topics of social behaviour and HIV/AIDs and general upliftment of employees' social status.
- Appointment of reputable contractors.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Summary report based on educational programmes and training conducted.
- Report and review of employee demographics.

5.1.8 Traffic

Potential traffic impacts will mostly be limited to the turnoff from the main road to the farm. Traffic is mostly related to the delivery of fertilizers and seed, as well as the transport of crops to markets. Construction phase activities of the lodge may see an increase in delivery and tourist vehicles to the farm. The increased traffic is not considered to contribute significantly to road degradation and increased incidents on a regional scale. Roads which will be used to reach the farm are all managed by the Roads Authority of Namibia and serve the regional community.

Desired Outcome: Minimum impact on traffic and no transport or traffic related incidents.

Actions

Prevention:

- Erect clear signage regarding access and exit points at the farm as well as speed limits on the gravel roads within the farm where required.
- Warn contractors and or an delivery vehicles new to the area about possible incidents risks close to or around the farm.

Mitigation:

- If any traffic impacts are expected, possibly as a result of delivery of equipment or construction material, traffic management should be performed.
- The placement of signs to warn and direct traffic will mitigate traffic impacts.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Record all traffic related complaints and the actions taken to prevent impacts from repeating itself.
- Compile a report of all incidents reported, complaints received, and actions taken.

5.1.9 Health, Safety and Security

Activities associated with the operations and maintenance / construction on the farm are reliant on human labour. Therefore, health and safety risks exist. Activities such as the operation of vehicles and machinery as well as handling of hazardous chemicals with inherent health hazards pose risks to employees. Encounters with wild animals and especially venomous species like snakes may pose risks to personnel on site. Security risks relates to unauthorized entry, theft and sabotage.

Desired Outcome: To prevent injury, health impacts and theft.

Actions

Prevention:

- Comply with all health and safety standards as specified in the Labour Act and related legislation.
- Clearly label dangerous and restricted areas as well as dangerous equipment and products.
- Lock away or store all equipment and goods on site in a manner suitable to discourage criminal activities (e.g. theft).
- Provide all employees with required and adequate personal protective equipment (PPE) where required. This include dust masks, hearing protectors and safety wear.
- Ensure that all personnel receive adequate training on the operational procedures of equipment and machinery and the handling of hazardous substances.
- Implement a maintenance register for all relevant equipment and fuel/hazardous substance storage areas.
- Apply and adhere to all industry specific health and safety procedures and regulations applicable to the handling of food produce for markets.

Mitigation:

- Train selected personnel in first aid and ensure first aid kits are available on site. The contact details of all emergency services must be readily available.
- Implement and maintain an integrated health and safety management system, to act as a monitoring and mitigating tool.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Record any incidents with the actions taken to prevent future occurrences.
- Compile a report of all incidents reported. The report should contain dates when training was conducted and when safety equipment and structures were inspected and maintained.

5.1.10 Fire

Construction activities, failing electrical infrastructure and fires outside of designated areas may increase the risk of the occurrence of uncontrolled fires which may spread into the nearby fields and surrounding farms. Lightning may result in veld fires that can damage property and threaten residents and visitors to the farm.

Desired Outcome: To prevent property damage, veld fires, possible injury and impacts caused by uncontrolled fires.

Actions:

Prevention:

- Maintenance of firebreaks, especially along fences and the power line servitude.
- Prepare a holistic fire protection and prevention plan. This plan must include evacuation plans and signage, an emergency response plan and a firefighting plan.
- Ensure fire-fighting equipment are maintained in good working order at all times. Ensure such equipment is readily available / unobstructed access.
- Personnel training (safe operational procedures, firefighting, fire prevention and responsible housekeeping practices).
- Ensure all flammable chemicals are stored according to material safety data sheet (MSDS) and SANS instructions and all spills or leaks are cleaned immediately.
- Maintain regular site, mechanical and electrical inspections and maintenance.
- Maintain firefighting equipment and promote good housekeeping.
- Notify the farmers' association as well as all surrounding farmers if planned burns (e.g. to create firebreaks) are planned.
- Allow fires used for purposes such as cooking (by staff) in designated areas only.

Mitigation:

- Implement the fire protection plan in the event of a fire.
- Quick response time by trained staff will limit the spread and impact of fire.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Maintain a register of all incidents on a daily basis. Include measures taken to ensure that such incidents do not repeat themselves.
- Compile an incidents report. The report should also contain dates when fire drills were conducted and when fire equipment was tested and training given.

5.1.11 Waste Production

Various waste streams result from the operational and possible construction and maintenance activities. Waste may include hazardous waste associated with hydrocarbon products and chemicals, as well as soil and water contaminated with such products. Construction waste may include building rubble and discarded equipment. Domestic waste will be generated by the residents and employees on the farm. Most of the farming related waste can be re-used and or recycled, however certain waste, such as empty pesticide containers are hazardous and should be disposed of according to hazardous waste requirements.

Waste presents a contamination risk and when not removed regularly may become a health and/or fire hazard and attract wild animals and scavengers. Sewage is a form of liquid biological waste that needs disposal.

Since no official waste disposal facilities, especially for hazardous waste, are available, all waste that cannot be re-used are burned at dedicated waste sites.

Desired Outcome: To reduce the amount of waste produced and prevent pollution and littering.

Actions

Prevention:

- Implement waste reduction measures. All waste that can be re-used / recycled must be kept separate.
- Ensure adequate temporary storage facilities for disposed waste are available.
- Prevent windblown waste from entering the environment.
- Prevent scavenging (human and non-human) of waste at the storage facilities.
- **E**ducate employees on the importance of proper waste handling and disposal.

Mitigation:

- Waste should be disposed of regularly and at appropriately classified disposal facilities, this includes hazardous material (empty chemical containers and contaminated materials, soil and water).
- Discarded waste should be disposed of and burned regularly at a dedicated site to reduce health and pollution risks.
- Empty chemical containers that may present a contamination / health risk must be disposed of as hazardous waste. Prevent workers and other people from collecting such containers for purposes of storing water.
- Liaise with the applicable municipality regarding waste and handling of hazardous waste.
- Ensure all ablution facilities are connected to properly constructed septic tank systems to prevent groundwater contamination. Should a sewage reclamation facility be used, re-use of the wastewater can be considered for gardening purposes only.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Maintain a register of hazardous waste disposal. This should include type of waste, volume as well as disposal method/facility.
- Record any complaints received regarding waste with notes on actions taken.
- All information to be included in a report.
- Keep design drawings and maintenance records of all sewage treatment facilities.

5.1.12 Change in Soil Characteristics

Physical disturbance of the soil through activities such as tillage and construction, disrupt the soil profile of the natural environment. Movement of machines, equipment, vehicles and people may compact soils. Chemicals (including fertiliser, pesticide and cleaning products) and hydrocarbon pollution resulting from the spilling of chemicals, fuel, oil or hydraulic fluids is possible. Tractor and other vehicle breakdowns or incorrect refuelling and storage of fuel are the most likely causes of hydrocarbon pollution. Waterlogging and salinization of soils may further result from inadequate drainage or over-irrigation. Waterlogging concentrates salts, drawn up from lower in the soil profile, in the plants' rooting zone. The build-up of salt in soils is difficult to rectify and may impact plant growth rates and microbiota. Saline soils may further wash into the Auob River south of the irrigated areas during rainfall events. The probability and extent of such an occurrence will be low as the earth dam will serve to accumulate such material, preventing further significant detrimental impacts downstream.

Old borrow-pits are present on the farm. They are more prone to developing erosion gullies which may extend into natural, undisturbed areas.

Desired Outcome: To avoid pollution and minimize impacts on the soil.

Actions.

Prevention:

- Vehicles may only be serviced on a suitable spill control structure.
- Regular inspections and maintenance of all vehicles to ensure no leaks are present.
- Ensure all waste oil handling is conducted on impermeable or bunded areas.
- Follow prescribed dosage of fertilizers and pesticides / herbicides and to avoid over application. Where possible application decision should be based on soil testing and plant analysis. Fertiliser application should consider soil temperature and moisture content and not be applied to severely compacted soils.
- Maintain sewerage systems and conduct regular monitoring.
- All hazardous waste must be removed from the site and disposed of timeously at a recognised hazardous waste disposal facility, including any polluted soil or water.
- All hazardous chemicals and fuel should be stored in a sufficiently bunded area, as per material Safety Data Sheet (MSDS) requirements.
- Where possible, soil compaction from stock grazing and/or heavy machinery movement should be minimised.
- Restrict heavy machinery to designated areas.
- Retain appropriate indigenous vegetation buffers along soil berms and cut-off trenches.
- Increased crop residue left in the soil where possible.

Mitigation:

- For construction activities, if any, contain construction material to a designated laydown area and prevent unnecessary movement out of areas earmarked for clearing and construction.
- Re-use of topsoil from areas earmarked for construction.
- Shaping and rehabilitation of old borrow-pits where possible.

Responsible Body:

- Contractor
- Proponent

Data Sources and Monitoring:

- Record of soil humidity profile kept.
- Record of all soil analysis kept.

5.1.13 Ecosystem and Biodiversity Impact

Areas which have been, or will be cleared for project related purposes (including the air-strip, camping site, lodge and related infrastructure), will see a definite loss of vegetation, impacts on soil and related habitat. None of the areas identified are however of critical conservation concern and have already been affected by anthropogenic activities.

A concern related to agricultural impacts is that of the cultivation of mono-cultures. Andrén, and Kätterer (2008) investigated aspects of biodiversity related to monocultures. They found that in the soil, under a monoculture, the biodiversity is almost always extremely high, though usually lower than in natural systems. They further found that there are no consistent indications that soil functions, such as organic matter decomposition, is hampered by lower biodiversity under monocultures. Plant residue will decompose at the same rate under a monoculture as under mixed plants, if soil temperature and moisture are the same. The presence of a large flowering field of produce may in effect attract and accommodate an increased number and abundance of species than arid and harsh surrounding natural environment. When considering the limited area of proposed monoculture in relation to the natural and conserved area of the farm, monoculture agriculture is not considered likely to have a significant impact on biodiversity.

The site selection of the lodge and related infrastructure will be conducted with cognisance of the limited riparian habitat which is important to conserve. Conservation of this zone will not only protect the related habitats, but will contribute to the tourism potential of the lodge. Large portions of the farm is dedicated to conservation and proposed tourism related activities. Significant capital investment has been made to ensure the protection and conservation of these areas. The nett ecological benefits of the entire project are greater than the limited footprint of the development, especially when compared to the previous condition of the farm.

Desired Outcome: To limit anthropogenic impacts while conserving habitats and ecosystems.

Actions.

Prevention:

- Obtain the necessary permits from MEFT for removal of protected species, if any.
- Educate all contracted and permanent employees on the value of biodiversity.
- Strict conditions prohibiting harvesting and poaching of fauna and flora should be part of employment contracts. This includes prohibitions or regulations on the collection of firewood.
- Regular inspection of fences, game footpaths and other sites for snares, traps or any other illegal activities.
- Take disciplinary action against any employees failing to comply with contractual conditions related to poaching and the environment.
- Delineate riparian habitat with conservation value and limit infrastructure development within these zones.
- Fence off the air-strip or put controls in place to clear the strip prior to landing of any aircraft.

Mitigation:

- For construction activities, if any, contain construction material to a designated laydown area and prevent unnecessary movement out of areas earmarked for clearing and construction.
- Report any extraordinary animal sightings to MEFT.
- Mitigation measures related to waste handling and the prevention of groundwater, surface water and soil contamination should limit ecosystem and biodiversity impacts.
- Avoid scavenging of waste by fauna.

Responsible Body:

- Contractor
- Proponent

Data Sources and Monitoring:

- Report on all extraordinary animal or plant sightings or instances of poaching.
- Map conservation areas and keep on file.
- Keep frequent records of borehole water levels and abstracted water volumes to identify any trends or consistent reduction in water levels.

5.1.14 Groundwater and Surface Water Contamination

Chemical spills, inclusive of fertilizers and pesticides, may result in very high but localised contamination of soil, increasing the risk of groundwater contamination if spill clean-up is not performed. Fertilizers and pesticides can leach into the ground and eventually reach and contaminate groundwater. Although the Proponent has indicated that organic farming is proposed, the impact assessment considered pesticide application as per the precautionary principle. Excessive fertilizer application can result in greater nitrogen loadings. This is a groundwater pollution risk, especially where the water table is shallow.

Leakages and spillages hazardous substances from tractors and earth moving equipment and accidental fuel, oil or hydraulic fluid spills during the construction phase.

Leakage from sewerage systems may contaminate the groundwater.

Desired Outcome: To prevent the contamination of groundwater, surface water and soil.

Actions

Prevention:

- Appoint reputable contractors.
- Service vehicles on a suitable spill control structure at all times.
- Regular inspections and maintenance of all vehicles to ensure no leaks are present.
- All hazardous chemicals should be stored in a sufficiently bunded area.
- Follow prescribed dosage of fertilizers, pesticides and herbicides to prevent over application.
- Maintain sewerage systems and conduct regular monitoring.
- Remove and dispose all hazardous waste of timeously and at a recognised hazardous waste disposal facility, including any polluted soil or water.

Mitigation:

- Immediately clean any spills that occurs.
- Consult relevant MSDS information and a suitably qualified specialist where needed.

Responsible Body:

- Proponent
- Contractors

Data Sources and Monitoring:

- Effluent Disposal Permit
- Maintain Material Safety Data Sheets for hazardous chemicals.
- Soil should be sampled and analysed annually to ensure the correct amounts of fertilizer is applied and soil and groundwater quality are maintained.
- Sample and analyse groundwater annually to test for nitrate concentrations from the fertilizers and for traces of chemicals used in pesticides and herbicides.
- Keep registers on the type, quantities and frequency of application of fertiliser, pesticides and any other chemicals utilised in crop production.
- Maintain a register of all incidents on a daily basis. This should include measures taken to ensure that such incidents do not repeat themselves.
- Report on and clean up all spills or leaks immediately.

5.1.15 Groundwater Availability

The over abstraction of groundwater for irrigation and other activities may lead to a drop in water table. This may negatively impact on surrounding users as well as existing habitats that depend on groundwater. For example the availability of groundwater may have an impact on the farm and surrounding farms, as well as on a bigger scale due to the cumulative impact. Over abstraction from surrounding users may contribute to the decline in water levels (cumulative impact).

Desired Outcome: To utilise the groundwater sustainably.

Actions

Prevention:

- Spread the water abstraction points over a larger area to diffuse the impact.
- Monthly water level monitoring.
- Maintain safe abstraction rates prescribed by the Ministry of Agriculture, Water and Land Reform in the water licence.

Mitigation:

- Reduce abstraction rates when the water levels decrease with more 10 m below the long-term averages of the specific boreholes.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Monthly water rest water level monitoring.
- Review baseline water level values every 3 years based on all historic water level data collected.
- Maintain a register of all groundwater related impacts.

5.1.16 Heritage

Construction activities and earthworks may uncover objects of heritage or archaeological significance.

Desired Outcome: To conserve any objects of heritage or archaeological value,

Actions

Prevention:

- All employees must be vigilant and stop any potential damaging activity if an object of potential significance is encountered.

Mitigation:

- Implement chance-find procedures. No work should be allowed on site until the site has been cleared to continue activities.
- A heritage specialist should be contracted to consider all objects found and to document all possible heritage or archaeological resources of value.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Maintain a register of all objects unearthed and reported to the National Heritage Council.

5.1.17 Cumulative Impact

Possible cumulative impacts associated with the operational phase and any maintenance / construction activities are linked to direct and indirect impacts on the social, biophysical and economic spheres of the environment. Impacts may further be grouped according to their positive contribution or detrimental effect on the state of the environment.

Positive cumulative considerations related to the proposed development include changes in land use, economic contributions, employment and conservation. All these aspects contribute in a local, regional and national scale to the various sectors involved with the project.

Desired Outcome: To minimise cumulative all impacts associated with the farm.

Actions

Mitigation:

- Addressing each of the individual impacts as discussed and recommended in the EMP would reduce the cumulative impact.
- Reviewing biannual reports for any new or re-occurring impacts or problems would aid in identifying cumulative impacts. Planning and improvement of the existing mitigation measures can then be implemented.

Responsible Body:

- Proponent

Data Sources and Monitoring:

- Create a summary report based on all other impacts to give an overall assessment of the impacts of the operational phase.

5.2 DECOMMISSIONING AND REHABILITATION

Closure and decommissioning of proposed activities on the farm as a whole is not foreseen during the validity of the environmental clearance certificate or in the near future. However, it is more likely that certain components may be decommissioned. Decommissioning is therefore included for this purpose as well as the fact that construction activities may also include modification and decommissioning. Prior to decommissioning, assess the future land use plans and implement rehabilitation measures if the land will not be used for similar future purposes. Decommissioning will entail the complete removal of all infrastructure including buildings and underground infrastructure. Any pollution present on the site must be remediated. The Environmental Management Plan for the farm will have to be reviewed at the time of full decommissioning to cater for changes made to the site and to implement guidelines and mitigation measures.

5.3 ENVIRONMENTAL MANAGEMENT SYSTEM

The Proponent could implement an Environmental Management System (EMS) for their 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;
- Periodic (internal and external) audits and reviews of environmental performance and the effectiveness of the EMS; and
- The EMP.

6 CONCLUSION

The above updated EMP, if properly implemented will help to continually minimise adverse impacts on the environment. Where impacts occur, immediate action must be taken to reduce the escalation of effects associated with these impacts. To ensure the relevance of this document to the specific stage of project, it needs to be reviewed throughout all phases.

The EMP should continue to be used as an on-site reference document during all phases of the project, and auditing should take place in order to determine compliance with the EMP for the site. Parties responsible for transgression of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

Monitoring reports must be submitted to the Ministry of Environment, Forestry and Tourism every six months (bi-annually) to allow for the future renewal of the ECC.

7 REFRENCES

Faul A, Botha P, Bosman Q, van der Merwe J, Short S; 2020 February; Agricultural and Hospitality Activities on Farm Campbellsdrei, Hardap Region: Environmental Assessment Scoping Report