

UPDATED ENVIRONMENTAL MANAGEMENT PLAN FOR THE ALTE KALKÖFEN LODGE, BERSEBA CONSTITUENCY, //KARAS REGION, NAMIBIA



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ACRONYMS AND GLOSSARY

The following is a list of the abbreviations, acronyms, technical terms, and definitions used in this Report:

AIDS	Acquired Immunodeficiency Syndrome
DR	District Road
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
EAPAN	Environmental Assessment Professionals of Namibia
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
FSMS	Food Safety Management System
GN	Government Notice
GRN	Government of the Republic of Namibia
ha	hectare
HAN	Hospitality Association of Namibia
HIV	Human Immunodeficiency Virus
HVAC	Heating, Ventilation, and Air Conditioning
I&APs	Interested and Affected Parties
IEMA	Institute of Environmental Management and Assessment
IFC	International Finance Corporation
ISO	International Organization for Standardization
IWM	Integrated Waste Management
km	kilometre
kVA	kilo Volt-Ampere
l	litre
MAWF	Ministry of Agriculture, Water and Forestry
MAWLR	Ministry of Agriculture, Water and Land Reform
MET	Ministry of Environment and Tourism
MEFT	Ministry of Environment, Forestry and Tourism
MFMR	Ministry of Fisheries and Marine Resources
MHSS	Ministry of Health and Social Services
MSDS	Material Safety Data Sheet
NCE	Namibia Chamber of Environment
NTB	Namibia Tourism Board
PPE	Personal Protective Equipment
SA	South Africa
SAIE-ES	Southern African Institute of Ecologists and Environmental Scientists
SHE	Safety, Health and Environment
STIs	Sexually Transmitted Infections
TB	Tuberculosis
UK	United Kingdom
UNAM	University of Namibia
VOC	Volatile Organic Compound
WHO	World Health Organization

1 Introduction

1.1 Background

The Alte Kalköfen Lodge, operational since August 2010, is located around 90 kilometres (km) west of Keetmanshoop on Farm Kalkwerk Sandverhaar No. 116, 19,6020 hectares (ha) in size, of Farm Sandverhaar No. 200 (20,500 ha in size) (see Figures 1 and 2).

The 1.2 km aircraft runway, found on Farm Sandverhaar No. 200 (see Maartens, 2016) has not been closed (see Maartens, 2019). Demand for use of the landing strip, however, is low (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm., 26 March 2024).

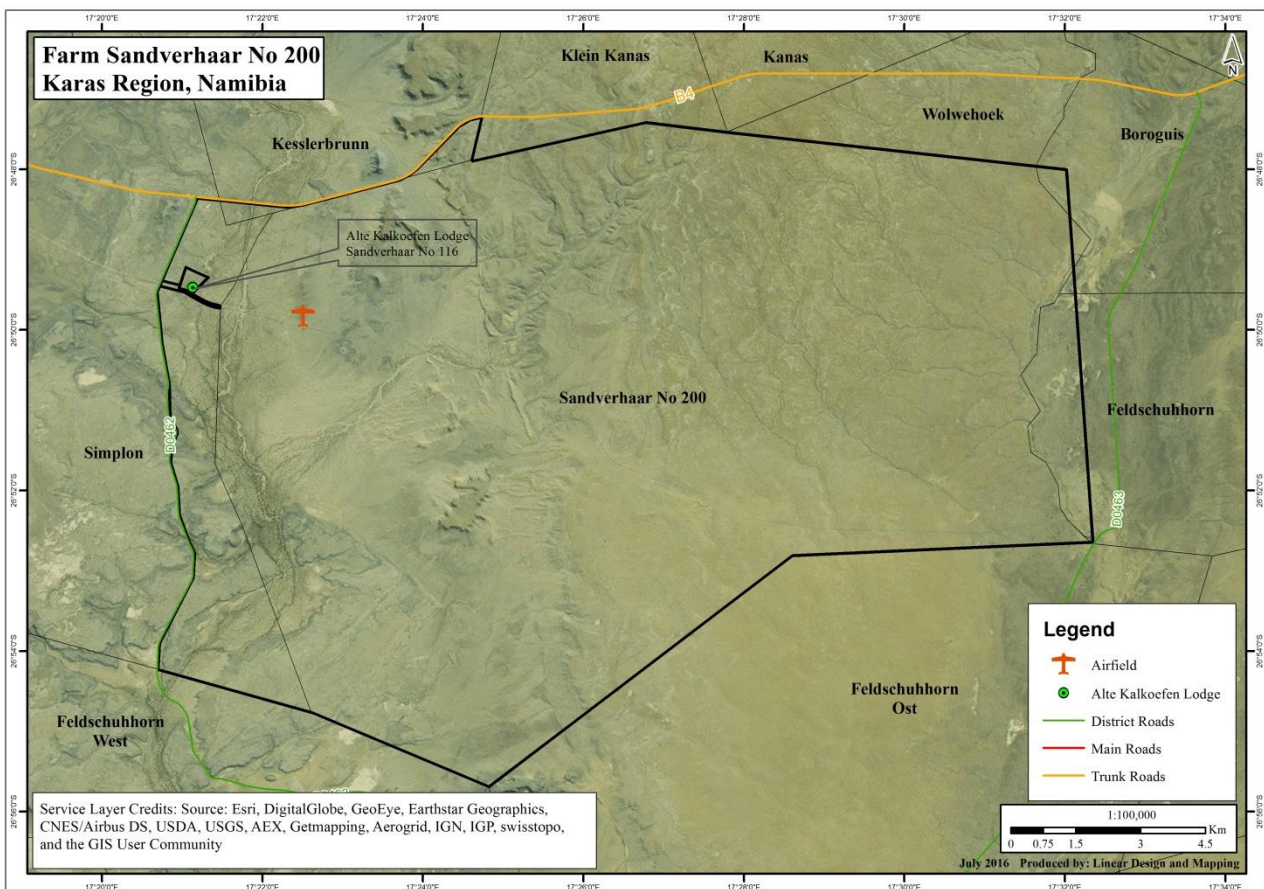


Figure 1: Map showing the location of the Alte Kalköfen Lodge on Farm Kalkwerk Sandverhaar No. 116, as well as the landing strip (airfield) on Farm Sandverhaar No. 200, Berseba Constituency, //Karas Region, Namibia (Source: Linear Design & Mapping, August 2016).

Access to the Alte Kalköfen Lodge can be attained from the B4 National Road between Keetmanshoop and Lüderitz (see Figure 1) and District Road (DR) 0462 (see Figure 2), //Karas Region, Namibia.

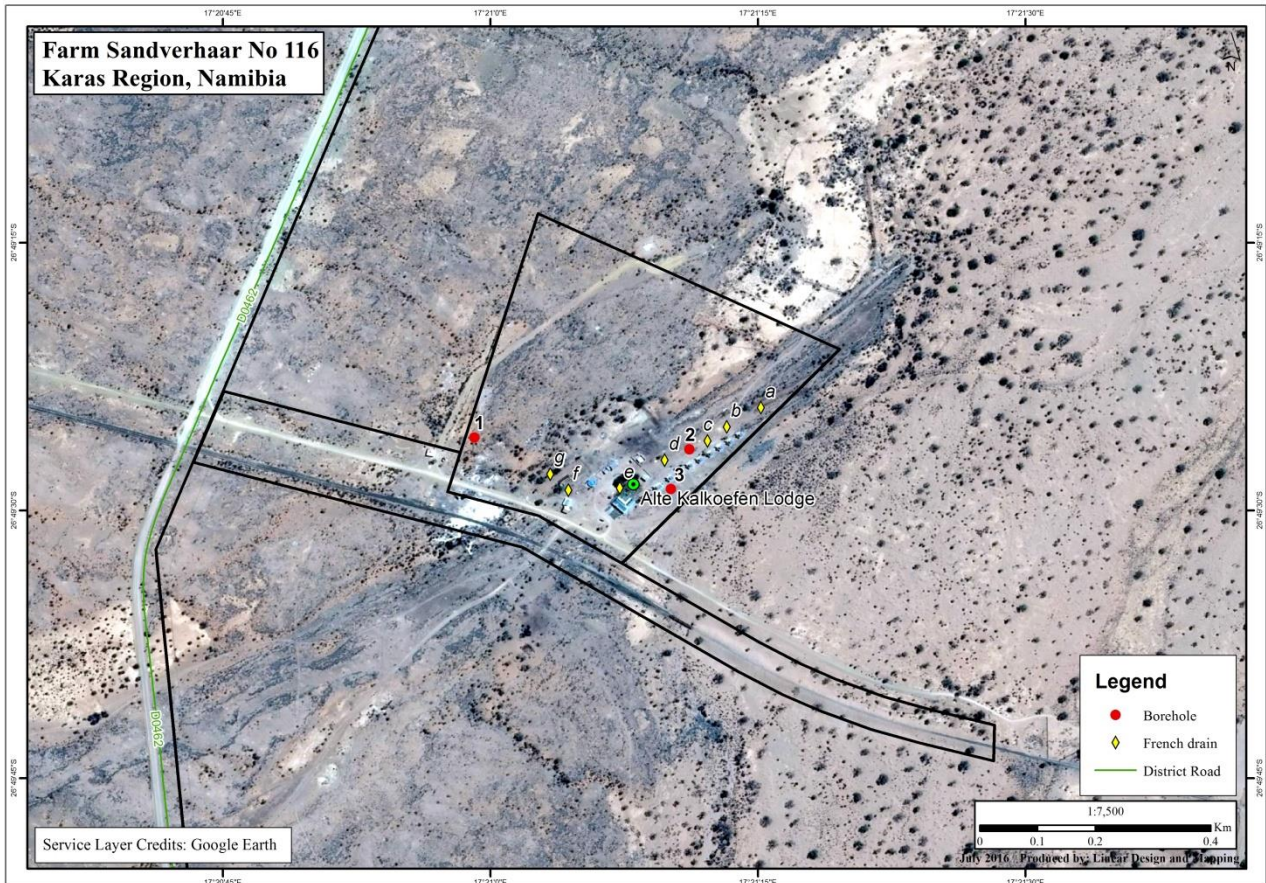


Figure 2: Map showing the location of the Alte Kalköfen Lodge, the three boreholes (not all in use), as well as the location of the French drain system on Farm Kalkwerk Sandverhaar No. 116 (Source: Linear Design & Mapping, August 2016).

In line with the Commencement of the Environmental Management Act (EMA), 2007 (Act No. 7 of 2007) (06 February 2012; Government Notice (GN) No. 28), the Listed Activities that may not be undertaken without an Environmental Clearance Certificate (ECC) (GN No. 29), and the Environmental Impact Assessment (EIA) Regulations (GN No. 30) (Government of the Republic of Namibia (GRN), 2012), the Owner-Managers, Mr Frikkie and Mrs Hilde Mouton: i) appointed LM Environmental Consulting to prepare an Environmental Management Plan (EMP) for the Alte Kalköfen Lodge on 14 June 2016; and ii) applied to the Environmental Commissioner for an ECC on 15 June 2016. An ECC was issued by the Office of the Environmental Commissioner to Alte Kalköfen Lodge on 09 September 2016; the ECC was valid for a period of three years, that was until 08 September 2019.

In February 2019, LM Environmental Consulting was again appointed by Mr Frikkie Mouton, Alte Kalköfen Lodge cc, to prepare a report, illustrating the implementation of and compliance with the EMP, in aid of the application for the renewal of the ECC for the EMP for the Alte Kalköfen Lodge, Berseba Constituency, //Karas Region, Namibia (see Maartens, 2019). An ECC was issued by the Office of the Environmental Commissioner to Alte Kalköfen Lodge on 12 July 2019; **ECC-0039** expired on 12 July 2022. As a result of the COVID-19 pandemic, no Bi-Annual Environmental Monitoring Reports were submitted between 2019 and 2022. Mr Frikkie Mouton, Alte Kalköfen Lodge cc, also did not apply for the renewal of the ECC in 2022.

An application for the renewal of the ECC for the EMP for the Alte Kalköfen Lodge, Berseba Constituency, //Karas Region, Namibia was submitted online (<http://www.eia.meft.gov.na/>) on 13 March 2024 (see Section 1.2). The Ministry of Environment, Forestry and Tourism (MEFT) registered the application with number **240313003084**, and then verified the application (**APP-003084**) (14 March 2024) and requested the uploading of the following documents: *updated EMP to effect amendment; confirmation of screening notice received (through email) in terms of assessment procedures (Section 35 (1)(a)(b) of the Environmental Management Act, No 7 of 2007); preliminary site map with coordinates (decimal degrees) and a legend; copy of the previous*

Environmental Clearance Certificate issued in terms of Section 37(1)(a) of EMA; and CV of Environmental Assessment Practitioner (EAP).

1.2 Terms of Reference

In February 2024, LM Environmental Consulting was appointed by Mr Frikkie Mouton, Alte Kalköfen Lodge cc, to update the EMP, in aid of the application for the renewal of the ECC for the EMP for the Alte Kalköfen Lodge, Berseba Constituency, //Karas Region, Namibia.

1.3 Environmental Assessment Practitioner

The author of this Report is Dr Lima Maartens who has more than 31 years' experience in natural resource management (*she gained her doctorate (Ph.D.) in Fisheries Science from Rhodes University, South Africa (SA) while working for the Namibian Ministry of Fisheries and Marine Resources (MFMR) in 2000*), lecturing (*University of Namibia (UNAM)*), environmental science and management (*De Beers Marine Namibia and the Canadian Forsys Metals Corp*), and consulting (*LM Environmental Consulting was established by Dr Maartens in October 2009*).

Sectors that she worked in as an Environmental Assessment Practitioner (EAP) include: exploration (including offshore oil and gas); mining and quarrying; renewable energy (solar and wind); tourism; manufacturing; agriculture; aqua- and mariculture; township, property (including medicine storage facilities) and waterfront developments, transport (rail and road), and infrastructure.

Dr Maartens is registered as a Lead Practitioner and Reviewer with the Environmental Assessment Professionals of Namibia (EAPAN) (she served on the Executive Committee during 2016/17), an Associate Member and Environmental Auditor with the Institute of Environmental Management and Assessment (IEMA) in the United Kingdom (UK), a Full Member of the Namibia Chamber of Environment (NCE), and a Member of the Namibia Scientific Society.

She has published five peer-reviewed scientific research articles (and three as co-author), six popular articles (and one as co-author), one book chapter (and one book chapter as co-author), 166 technical reports (LM Environmental Consulting), three technical reports (for De Beers Marine Namibia), and one conference paper.

2 Environmental Management Plan: Implementation and Compliance

2.1 Introduction

As part of the EMP performance review, the following actions were carried out:

- The following information was made available by Mr Frikkie Mouton:
 - Renewed Fitness Certificate, Environmental Health Services (General Health Regulations), Ministry of Health and Social Services (MHSS) (issued 22 March 2024 and valid till 31 March 2025);
 - Membership Certificate from the Hospitality Association of Namibia (HAN) (issued March 2024 for the year 2024/25; member since 2012);
 - Renewed Special Liquor Licence, Ministry of Trade and Industry (issued 26 March 2024 and valid till 31 March 2025);
 - Employment Equity Commission, Exemption in terms of Section 42 (2) of the Affirmative Action (Employment) Act No. 29 of 1998 (dated 24 January 2024 till 28 February 2025);
 - Medical Certificates, in terms of the General Health Regulations, GN121 of 14 October 1969, part XLX, Section 201, indicating that four staff members are fit for employment in a premises on which food is prepared, handled, served, delivered, stored, or sold (Dr Coetzee & Groenewald, 12 and 15 April 2024);
 - Coronavirus (COVID-19) Company Policy (no date);
 - Fire Escape Plan (no date);
 - (Generic) Health Safety Policy (no date; not signed);
 - (Generic) HIV Aids Policy (no date; not signed);
 - (Generic) Violence in the Workplace Prevention Policy (no date; not signed);
 - Information Booklet (no date); and
- E-mail correspondence with Mr Frikkie Mouton on 26 March, 02, 07 and 20 April 2024.

2.2 Compliance: Environmental Management Plan

In order to illustrate compliance with the EMP (see Table 1), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not Applicable (N/A)
	Changes made to existing EMP

Note that the Alte Kalköfen Lodge is in possession of / is a member of / was awarded:

- Environmental Policy and Plan (2012) (see Maartens, 2016);
- Namibia Tourism Board (NTB) (since 09 December 2011);
- Two flowers (2013) and four flowers (2022) by Eco Awards Namibia;
- Certificate of Registration (in terms of Ordinance 4 of 1975, as amended) for the Plant Nursery (Protected species), Ministry of Environment, Forestry and Tourism (MEFT) (issued 01 April 2023 and valid till 31 March 2024 – an application for a renewal has been submitted to the MEFT on 25 March 2024) (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm., 07 April 2024); and
- A Certificate of Excellence from TripAdvisor in 2015 (as Winner) (see Maartens, 2016); Certificates of Excellence have been received from TripAdvisor annually since 2015 with the latest Certificate issued in 2018 (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm., April 2019); the Lodge received a Travelers' Choice Award in 2023 (see https://www.tripadvisor.com/Hotel_Review-g480217-d2279032-Reviews-Alte_Kalkofen_Lodge-Keetmanshoop_Central_Plateau.html).

The EMP (see Maartens, 2016; 2019; also see International Finance Corporation (IFC), 2007a; b) is not a static document and the document should be updated as activities at the Alte Kalköfen Lodge progresses.

Table 1: Implementation of and compliance with the Environmental Management Plan for the Alte Kalköfen Lodge, Berseba Constituency, //Karas Region, Namibia.

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
Social and Environmental Performance				
Management and Monitoring	Social and Environmental Performance	Adhere to all Namibian Legislation, including Best Practice Guidelines.	Ongoing	Ongoing
		Ensure that all aspects related to the Environmental Management Plan (EMP) are implemented.	All aspects have not been implemented; the Owner-Managers of the Alte Kalköfen Lodge to implement and observe the EMP on an ongoing basis.	All aspects have not been implemented; the Owner-Managers of the Alte Kalköfen Lodge to implement and observe the EMP on an ongoing basis.
Consultation and Disclosure	Social and Environmental Performance	Maintain open and direct lines of communication with the Authorities and Interested and Affected Parties (I&APs) (e.g. the //Karas Regional Council, the Ministry of Environment, Forestry and Tourism (MEFT), the Ministry of Health and Social Services (MHSS), the Namibia Tourism Board (NTB), the Hospitality Association of Namibia (HAN), Eco Awards Namibia, etc.) with regards to environmental matters. Consult with I&APs throughout the project process and adequately incorporate I&APs' concerns.	Ongoing During the past three years, communication with the MHSS and NTB only took place (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Ongoing
Grievance Mechanism	Social and Environmental Performance	Implement a grievance mechanism for receiving and resolving any concerns and grievances related to the project's social and environmental performance throughout the project life cycle. Inform all I&APs about the mechanism. Address concerns promptly and transparently and in a culturally appropriate manner. Keep a register of all concerns/issues received from I&APs, as well as the measures taken to address these.	Ongoing A formal grievance mechanism is not in place. However, I&APs (i.e. guests) do make use of TripAdvisor (see https://www.tripadvisor.com/Hotel_Review-g480217-d2279032-Reviews-Alte_Kalkofen_Lodge-Keetmanshoop_Central_Plateau.html) and/or the Visitor's Register to comment on e.g. the location of, the cleanliness and service at, and value (offered) at Alte Kalköfen Lodge (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Ongoing Alte Kalköfen Lodge was awarded a Travelers' Choice award in 2023. Tripadvisor gives a Travelers' Choice award to accommodations, attractions and restaurants that consistently earn great reviews from travelers and are ranked within the top 10% of properties on Tripadvisor (see https://www.tripadvisor.com/Hotel_Review-g480217-d2279032-Reviews-Alte_Kalkofen_Lodge-Keetmanshoop_Central_Plateau.html).
Training, including awareness and inductions	Social and Environmental Performance	Train employees in matters related to the project's social and environmental performance and Namibia's regulatory requirements.	Compliant and ongoing	Ongoing

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
		<p>Ensure adequate environmental awareness training for all personnel.</p> <p>Give environmental induction presentations to all personnel.</p>	<p>Staff (12 persons) receive in-house training supplied by Management (three persons).</p> <p>Inductions are given to all new staff members by Mr Frikkie Mouton and the Supervisor, in consultation with Seena Legal Consult (Pty) Ltd (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p>	<p>Staff (13 persons) receive in-house training supplied by Management (two persons) and an ongoing basis.</p> <p>Management consults with Seena Legal Consult (Pty) Ltd as applicable (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p>
Employment and procurement opportunities	Social and Environmental Performance	<p>Source contracting companies/service providers/workers based on merit and expertise giving preference to local contractors/service providers/workers on condition that the local contractors/service providers/workers have the required experience and expertise.</p> <p>Consider utilising local labour for unskilled work and to then provide training to workers in order to perform semi-skilled work; this should be done under the supervision of managers/specialists to ensure maximum local beneficiation.</p> <p>Ensure that contractors/service providers adhere to the Namibian Labour, Social Security, Health and Safety, and Affirmative Action laws.</p> <p>Contracts to stipulate that all contractors/service providers have an HIV/AIDS Policy and Programme in place.</p> <p>Source maximally from local resources to ensure maximum economic beneficiation of local businesses in terms of new business sales.</p>	N/A	<p>Ongoing</p> <p>Contractors include e.g. First Technical Fire Services and Conserve Engineering Services (solar and generator) from Windhoek, Sentrale Diens from Keetmanshoop (air conditioning; services take place every December); Grotes Engelbrecht Electrician from Keetmanshoop; African Online from Windhoek (internet service provider); Multichoice from Windhoek; Bank Windhoek in Keetmanshoop; Seena Legal Consult (Pty) Ltd from Windhoek; Fisher, Quarmby & Pheifer from Windhoek; Sanlam / Momentum / Hollard; Exclusive Marketing Windhoek; Booking.com / Expedia / SafariNow / several South African / Namibian / Overseas tour operators; and Nurse Mara Oberholzer (neighbour; medical emergencies).</p> <p>Suppliers include: Hartlief, African Marketing, and Pupkewitz Catering (Windhoek); Metro, SuperSpar, Namibian Breweries, Karas Fruit & Vegetables, Plastic Packaging, Suide Koelkamers, Agra, Pupkewitz, Dynamic Steel, Build It, Kaap Agri, Shoprite, Crazy Store,</p>

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
				Khabuser Pharmacy, Herboth Garage, Buttercup Trading, Formula Courier, Matthys Computer, Central Gas, and Namib Sweiswerke (Keetmanshoop) (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).
Labour and Working Conditions	Social and Environmental Performance	<p>Establish, maintain and improve the worker-management relationship. Base the employment relationship on equal opportunity and fair treatment and no discrimination to be allowed.</p> <p>Comply with Namibia's labour and employment laws.</p> <p>Promote safe and healthy working conditions and the protection and promotion of worker health.</p> <p>Document and communicate the Working Conditions and Terms of Employment.</p> <p>Respect Collective Agreements and the right of workers to organize and bargain collectively.</p> <p>Implement a Grievance Mechanism.</p>	<p>Compliant and ongoing</p> <p>Alte Kalköfen Lodge cc belongs to Seena Legal Consult (Pty) Ltd (see http://www.seenalegal.com/) (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p>	Ongoing
<p>Staff working at Alte Kalköfen Lodge is accommodated in four blocks of staff accommodation and consisting of altogether 13 rooms, and a shower and toilet per block (i.e. four showers and four toilets). All rooms have solar power and staff can watch television (TV) in a room that has specially been constructed for this purpose. It is planned, when funds allow, to build a small creche; a small classroom has already been constructed next to the TV room (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm., April 2019).</p>				

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
<p>Figure 3: Picture showing: a) Owner/Manager's house; b) house used as a relation office; c) and d) staff accommodation and two 10,000 litre water tanks (Source: L. Maartens, 15 February 2024).</p>				
Occupational and Community Health and Safety and Security	Social and Environmental Performance	<p>Adhere to all Namibia's Health and Safety Regulations (Labour Act, 1992: Regulations Relating to the Health and Safety of Employees at Work).</p> <p>Ensure that an HIV/AIDS Policy and Programme and Health and Safety Plan is in place.</p>	<p>Ongoing</p> <p>The Owner-Managers of the Alte Kalköfen Lodge to establish, implement, and maintain an HIV/AIDS Policy and Programme and Health and Safety Plan.</p>	<p>Ongoing</p> <p>Seena Legal Consult (Pty) Ltd provided Alte Kalköfen Lodge with generic Health Safety and HIV Aids Policies (no date; not signed). It is advised that these documents be updated / made Lodge specific,</p>

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
				signed and dated, and made available to all staff.
		A SHE (Safety, Health, Environment) Representative to be appointed once the staff complement reaches 20.	<p>Alte Kalköfen Lodge currently employs fifteen (15) people (five males and ten females) (including Management staff).</p> <p>The staff comes from two families that originated from Keetmanshoop, Bethanie, the Kosis Settlement (120 km west of Keetmanshoop and not far from Bethanie), and Berseba (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p>	<p>Alte Kalköfen Lodge currently employs fifteen (15) people (five males and ten females).</p> <p>The staff comes from Keetmanshoop (three persons), Berseba (one person), and the Kosis Settlement (120 km west of Keetmanshoop and not far from Bethanie) (nine persons) (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p>
		Occupational Health and Safety Training to be provided to all employees.	Staff (12 persons) receive in-house training supplied by Management (three persons) (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Staff (13 persons) receive in-house training supplied by Management (two persons) and an ongoing basis (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).
		Ensure that qualified first aid can be provided at all times.	<p>Basic first aid can be provided at the Lodge, otherwise staff is transported to the Health Centre in Bethanie (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p> <p>The following services are available at the Health Centre: Ante Natal Clinic (ANC) Services; Anti Retroviral Therapy IMAI Site; Anti Retroviral Therapy Main Site; Anti Retroviral Therapy Outreach Site; DNA EID Testing; Expanded Programme on Immunizations; Family Planning Services; General Clinical Service; HIV Testing Services; Option B+; Preventing Mother To Child Transmission (PMTCT) Services; Sexual Transmitted Infections (STIs); Tuberculosis (TB) Services; and Viral Load Testing.</p>	Basic first aid can be provided at the Lodge (there are two first aid kits) (by Mrs Mouton / the neighbour that is a nurse and that is located 10 km from the Lodge), otherwise staff is transported to the Health Centre in Bethanie (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
			It is advised that the Management and Staff at the Lodge should receive formal First Aid training (including annual refresher courses).	It is advised that the Management and Staff at the Lodge should receive formal First Aid training (including annual refresher courses).
		Comply with all safety regulations re. electricity supply.	The power installation and upgrade was done by staff from ConServ Engineering Services in Windhoek (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Air conditioners have been installed in all 12 of the bungalows (see Maartens, 2019) and another upgrade (also at the staff accommodations) was done by staff from ConServ Engineering Services in Windhoek in December 2023 (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).
		Ensure that employees are trained in the use of appropriate firefighting equipment and ensure that such equipment is on hand at all times.	Firefighting equipment to be obtained and Management and Staff to receive training.	Firefighting equipment are available at the 12 bungalows, as well as at the restaurant; training was provided by First Technical Fire Services (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.). The next service is due February 2025 (pers. obs.).
		Provide and ensure the active use of Personal Protective Equipment (PPE).	Ongoing	Ongoing
		Make suitable arrangements, as far as practicable, for the maintenance of health, the prevention and overcoming of outbreaks of disease and of adequate first aid services.	Staff receive in-house training re living a healthy life (including awareness training re HIV and TB, and personal hygiene). Staff (food handlers) also undergo annual medical examinations (by Dr A.R.H. Schröder and as per the MHSS' guidelines of December 2015) (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Staff (13 persons) receive in-house training supplied by Management (two persons) and an ongoing basis (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.). Dr Coetzee & Groenewald certified four staff members fit for employment in a premises on which food is prepared, handled, served, delivered, stored, or sold on 12 and 15 April 2024.
		Prevent communicable disease (e.g. Sexually Transmitted Infections (STIs) such as HIV transmission): provide surveillance and active screening and treatment of employees; prevent illness among employees (through health awareness and education initiatives); ensure ready	Ongoing (see above)	Ongoing (see above)

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
		access to medical treatment, confidentiality and appropriate care, particularly with respect to migrant workers; and promote immunization.		
		Ensure that security arrangements are in place.	Compliant and ongoing Cameras were also put up (two) at the Cole Lithoparium (see below) (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	At the moment, there is an alarm and security cameras at the main building only; the matter of security is currently under review (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).
The Alte Kalköfen Lodge				
Operational activities	Negative impact on floral species	Avoid/prevent the planting of potentially invasive alien plant species for ornamental purposes as part of the landscaping (these species often “escape” and become invasive causing further ecological damage); rather incorporate indigenous vegetation into the overall landscaping of the area (this would create a natural ambiance and indigenous species require less water and overall maintenance). <i>Note that the invasive alien Downy thorn apple Datura innoxia was observed in the Riverbed and should be removed.</i> Promote appropriate guest and staff behaviour (e.g. do not allow any native plant species to be removed/damaged).	Compliant and ongoing Invasive alien plant species, including Prosopis species, are removed. Compliant and ongoing (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Ongoing (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).
Operational activities	Positive impact on floral species	N/A; see below	N/A; see below	
<p>Alte Kalköfen Lodge is well-known for its Cole Lithoparium (see Figure 4), named after Professor Desmond and Mrs Naureen Cole, and where the biggest registered collection of Lithops in Namibia can be found. Lithops are uniquely Southern African plants occurring in the dessert and semi-dessert areas of northern South Africa, and western and southern Namibia. There are currently 40 species, of which 16 species occur only in Namibia, four (4) species inhabit suitable habitat in both Namibia and South Africa, and 20 species only occur in South Africa (see Lithops in Habitat and Cultivation; Earle and Round, 2021). The Lithoparium was enlarged in order to split the Namibian and South African Lithops collections (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm., April 2019).</p> <p>A new website, where more information re. the Lithops Research & Conservation Foundation can be found, was hosted in 2017 (see https://www.lithopsfoundation.com/). During the same year, a booklet called Lithops of Namibia (Earlé and Round, 2017) was published (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm., April 2019). The Lithops Research & Conservation Foundation has written/published a detailed book re Lithops (Lithops in Habitat and Cultivation); the book is for sale at the Lodge (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm., March 2024).</p>				

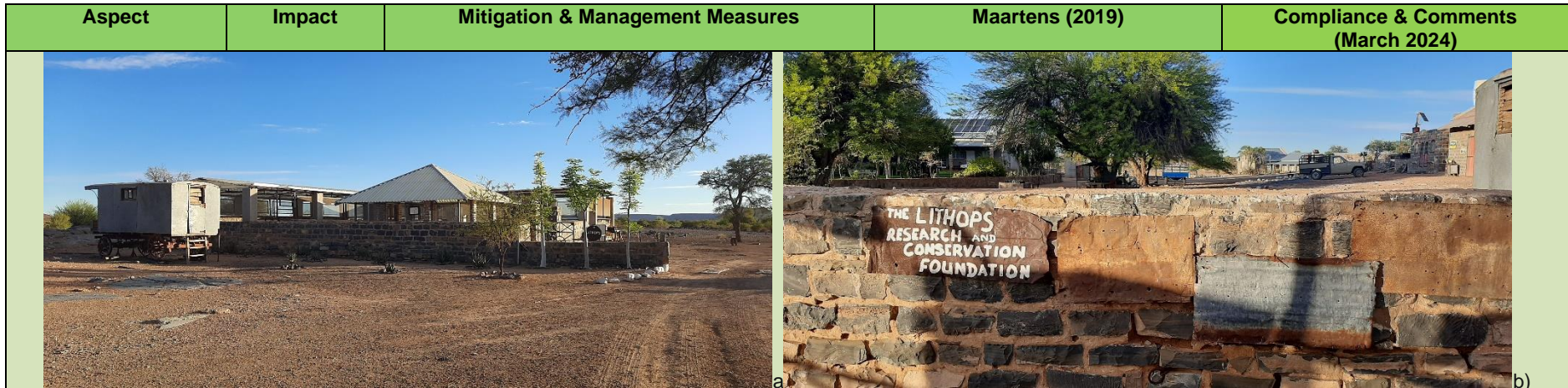


Figure 4: Pictures showing the Cole Lithoparium (Source: L. Maartens, 15 February 2024).

Operational activities	Pollution of biophysical environment (surface and groundwater)	<p><u>Fertilizers:</u> Conduct regular soil testing (to establish nutrient needs) in order to determine fertilizer application rates/correct doses.</p> <p>Store fertilizers in their original packaging in a dedicated, locked area, with proper signage, and with access limited only to authorised personnel.</p> <p>Use slow-release and/or natural organic fertilizers. Manure can be an alternative, but if over applied it may also cause pollution.</p> <p>Prepare a management plan covering the measures for containment, storage and ultimate destruction of obsolete fertilizers in accordance to the Food and Agriculture Organization (FAO) guidelines (and consistent with country commitments under the Stockholm, Rotterdam and Basel Conventions).</p>	N/A	N/A
		<p><i>Note that food scraps are used as compost for the gardens at the Alte Kalköfen Lodge.</i></p>	Ongoing	Ongoing Food scraps are composted and the latter is used for the pomegranate and olive trees, as well a new vegetable garden (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
		<p><u>Pesticides:</u> Consider non-chemical methods (e.g. use beneficial organisms to perform the biological control of pests, or use mechanical controls, i.e. traps, barriers, light and sound to kill/relocate/repel pests, or use mechanical weed control/thermal weeding) before resorting to chemical application.</p> <p>Maintain a pesticide logbook: e.g. field observations, weather data, time and dosage of treatment, and effectiveness and apply pesticides based on these criteria. Ensure that only the minimum effective dose is applied.</p> <p>Avoid the use of pesticides that fall under the World Health Organization (WHO) Recommended Classification of Pesticides by Hazard Classes 1a and b, and by Hazard Class II. Also those that are listed in Annexes A and B of the Stockholm Convention (except under the conditions noted in the convention). Only use pesticides that are manufactured under license, registered and approved by the appropriate authority and in accordance with the FAO's International Code of Conduct on the Distribution and Use of Pesticides. Only use pesticides that are labeled in accordance with international standards and norms.</p> <p>Pesticide application equipment to be maintained and calibrated in accordance with manufacturer's recommendations.</p> <p>Store pesticides in their original packaging in a dedicated, dry, cool, frost-free, well aerated, locked area, with proper signage, and with access limited only to authorised personnel. Also ensure that spill containment measures are in place.</p> <p>Ensure that the personnel applying pesticides are properly trained; mixing and transfer of pesticides to be done in ventilated and well-lit areas using containers designed/dedicated for the task. Contaminated containers to be handled and treated</p>	<p>Ongoing</p> <p>E.g. Fendona is used where feasible (see https://www.pestcontrol.basf.co.za/en/Products/Overview/Fendona%C2%AE-6-SC.html) (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p>	<p>Ongoing</p> <p>E.g. Fendona is used where feasible (see https://www.pestcontrol.basf.co.za/en/Products/Overview/Fendona%C2%AE-6-SC.html) (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p>

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
		as hazardous waste (see Hazardous materials management). Purchase and store only the required amounts of pesticides.		
The Alte Kalköfen Lodge: Resource Use				
Energy Management	Resource use (e.g. coal) / depletion of natural resources	Promote the sustainable use of energy (that will result in the reduction of use and cost reductions) (e.g. energy efficient light sources).	<p>During 2016, ninety percent (90%) of the power for the Alte Kalköfen Lodge came from the sun (solar power) and 10% (three hours per day) by using a 36 kilo Volt-Ampere (kVA) generator (see Maartens, 2016).</p> <p>The solar system has since been upgraded, i.e. the generator starts automatically (and runs for ± one hour to supplement the power) once the amount of stored battery power becomes too low in the evenings. Also, two of the Staff received specialized training re the Lodge's power system (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p>	<p>Another upgrade was done by staff from ConServ Engineering Services in Windhoek during December 2023.</p> <p>In time, more batteries will be acquired in order to use the generator as little as possible (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p>
		Raise awareness amongst the residents, staff (and contractors).	E.g. an Information Booklet is provided to guests and the following is noted: <i>"We are solar powered and our system is unable to support items that have an element. We therefore respectfully request that you do not use travel kettles or travel irons as these may damage our system. Please switch off lights and electrical devices when not in use."</i>	
		For reduction of energy consumption associated with heating, ventilation, and air conditioning (HVAC), lighting, and cooking and refrigeration equipment see IFC (2007b).	Ongoing	Ongoing
			Air conditioners have been installed in all 12 of the bungalows during the past three years; a maintenance schedule will be drawn up and records kept (Mr Frikkie Mouton,	The air conditioners are serviced once a year by Sentrale Diens from Keetmanshoop (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
			Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	
Water-efficient design features	Resource use (water) / depletion of natural resources	Use, where feasible, water saving equipment including ultra-low-flush toilets, spray nozzles, urinals, faucet aerators, and low-flow showerheads, infrared and ultrasonic sensors, water spigots, and pressure-control valves.	The amount of water used during flushing is controlled/pre-set (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	The amount of water used during flushing is controlled/pre-set where possible (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).
Water Management	Resource use / depletion of natural resources	<p>Implement a water conservation program, promoting the continuous reduction in water consumption.</p> <p>Promote and enforce a policy on landscape and garden designs that minimise water consumption e.g. the use of indigenous plants.</p> <p>Raise awareness amongst the residents, staff (and contractors) re the importance of saving water.</p>	<p>Compliant and ongoing</p> <p>A pressure pump is immediately activated in case of leakages, faulty toilets, etc. Also, daily inspections are carried out to check the water, power, lights, and doors (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p> <p>In the Information Booklet provided to guests the following is noted: <i>“Water is a rare commodity in Namibia. Please use it sparingly.”</i></p>	<p>Compliant and ongoing</p> <p>A pressure pump is immediately activated in case of leakages, faulty toilets, etc. Also, daily inspections are carried out to check the water, power, lights, and doors (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p> <p>In the Information Booklet provided to guests the following is noted: <i>“Water is a rare commodity in Namibia. Please use it sparingly.”</i></p>
<p>During 2016, water for the Alte Kalköfen Lodge was obtained from two boreholes, i.e. borehole 2 (watering of the gardens) and borehole 3 (water for the Lodge); no water was abstracted from borehole 1 (see Figure 2). The water was abstracted from the boreholes and stored in a 10,000 litre (l) tank. Water abstraction and consumption figures were unknown at the time (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm., 2016).</p> <p>Subsequently, water was abstracted from borehole 1 (see Figure 2) for use by the staff at their facilities. The water was pumped (solar powered pump) into a 5,000 l tank; an additional two 10,000 l tanks were also going to be installed. Eventually it was planned to use the water from this borehole not only at the staff accommodation and ablution facilities, but also to water the pomegranate and olive trees and the vegetable garden. Water from boreholes 2 and 3 was pumped into a 10,000 l tank and used for the Lodge and the gardens (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm., April 2019) (see Maartens, 2019).</p> <p>At the moment, there are three 10,000 litre water tanks (two tanks at the staff accommodation and one tank at the Lodge); all three tanks are used to supply water to the Lodge (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p> <p>As the Alte Kalköfen Lodge did not fall within a Water Control Area (Water Act 54 of 1956 (as amended)), a water abstraction permit was not required. However, a letter was required from the Department of Water Affairs (DWA), Ministry of Agriculture, Water and Forestry (MAWF) (now Ministry of Agriculture, Water and Land Reform (MAWLR)), stating that it was not a Water Control Area (and that Alte Kalköfen Lodge may abstract water for commercial purposes) (Mr Franciskus Witbooi, Deputy Director: Law Administration, Ministry of Agriculture, Water and Forestry, pers. comm.). Mr Frikkie Mouton requested the said letter from the DWA, MAWF on 14 May 2019. On 16 May 2019, the MAWF noted that they have no objection against the abstraction of groundwater for Lodge operation purposes (see Annexure A).</p> <p>The average water consumption between June and December 2022 was 183 cubic meters (m³) (borehole 1) and 300 m³ (borehole 2); during 2023, 244 m³ and 521 m³ were used (average for the year) from boreholes 1 and 2, respectively (water consumption data were provided by Mr Frikkie Mouton, 07 April 2024).</p>				

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
<p><u>Note:</u> on 29 August 2023, the Water Resources Management Act 11 of 2013 was implemented; the Minister made Water Resources Management Regulations 2023. Clients will have 18 months to comply with the Water Resources Management Act and Regulations.</p>				
<p>The Alte Kalköfen Lodge: Hazardous Materials Management</p>				
Hazardous materials management	Social and Environmental Performance	<p>Establish hazardous materials management priorities (based on hazard analysis of risky operations).</p> <p>Avoid, or minimize the use of hazardous materials.</p> <p>Prevent uncontrolled releases of hazardous materials to the environment or uncontrolled reactions that may result in fire or explosion.</p> <p>Implement management controls (procedures, inspections and training, communication and drills) to address residual risks.</p>	<p>Ongoing</p> <p>Materials used at the Lodge include: pesticides (see above), diesel (~250 l per month for the generator), Blu52 pool cleaner, and then the cleaning materials for the rooms and bathrooms, and reception, office, dining room, and kitchen (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p>	<p>Ongoing</p> <p>Materials used at the Lodge include: pesticides (see above), diesel for the generator (varying amounts varying on the number of guests), Blu52 pool cleaner, and then the cleaning materials for the rooms and bathrooms, and reception, office, dining room, and kitchen (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p>
Hazardous materials management	Pollution of biophysical environment (soil and water)	<p>Implement prevention and control measures for the use, handling and storage of hazardous materials: <u>Reaction, fire, and explosion prevention</u>: hazardous materials to be stored in marked containers and separate (from non-hazardous materials); incompatible hazardous materials (acids, bases, flammables, oxidizers, reactive chemicals) to be stored in separate areas and with containment facilities separating material storage; smoking or working with open flames not to be permitted in the presence of these substances; limit access to hazardous waste storage areas and clearly label and demarcate the area; conduct regular inspections of the areas and document the findings; prepare and implement spill response and emergency plans; train employees in the use of appropriate fire fighting equipment and ensure that such equipment is on hand at all times.</p> <p>Train workers on the correct transfer and handling of fuels and chemicals and the response to spills.</p> <p>Immediately report and clean up any accidental hydrocarbon spill: Spill-Sorb, Drizzat Pads, Enretech Powder or Peat Moss can be used to clean up small spills; in case of larger spills, the spill</p>	<p>Ongoing</p> <p>Staff received in-house training (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p>	<p>Ongoing</p> <p>Staff (13 persons) receive in-house training supplied by Management (two persons) and an ongoing basis (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p>

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
		together with the polluted soil should be removed and disposed of at e.g. a biological remediation site.		
Hazardous materials management	Occupational Health and Safety	Implement hazard communication and training programmes (including information on Material Safety Data Sheets (MSDS)) to make employees aware of workplace chemical hazards and how to respond to these.	N/A	N/A
		Provide and ensure the active use of PPE.	Ongoing	Ongoing
The Alte Kalköfen Lodge: Waste Management				
Waste management: non-hazardous and hazardous	Pollution of biophysical environment	<p>Prepare an Integrated Waste Management (IWM) Plan. The generation of waste should be avoided as far as practicable; where it cannot be avoided, waste should be reduced, re-used and recovered (including recycling and composting - <i>note that organic waste is used for composting</i>); where waste cannot be reduced, re-used and/or recovered, it should be disposed of in an environmentally sound manner (at the Bethanie or Keetmanshoop landfills).</p> <p>Waste minimisation can be achieved by: buying in bulk quantities; using refillable, bulk dispensers (e.g. toiletries) (vs. individually packaged products); working with suppliers in order to limit the use of, and establishing recycling for, product packaging; avoiding the use of polystyrene foam altogether; using glass/durable plastic rather than disposable plastic items (straws/cups); providing in-room recycling procedures and appropriate receptacles.</p> <p>Raise awareness amongst residents, staff and contractors (to reduce, recycle and reuse waste).</p> <p>Stamp down on any form of littering.</p> <p>Non-hazardous and hazardous waste to be collected and stored separately.</p> <p>Hazardous waste: recycle petroleum (fuels and lubricants) waste products and collect and recycle batteries and print cartridges. The remainder to be transported by an approved contractor to a recognized hazardous waste disposal site (e.g. Walvis Bay or Windhoek), with prior permission from the relevant Municipality.</p>	<p>An IWM-approach is followed (see Maartens, 2016). Waste is reduced (by buying in bulk quantities), re-used (e.g. food scraps are used as compost for the vegetable garden), recovered (recycling of e.g. tins and glass at Blaauw's Recycling Plant in Keetmanshoop), and disposed of at the non-hazardous landfill (plastics and paper are sorted and transported to the Bethanie landfill).</p> <p>No polystyrene foam and/or plastic items (straws/cups) are used anymore.</p> <p>Solid waste generated by guests are collected and sorted by the Staff.</p> <p>Compliant and ongoing</p> <p>Compliant and ongoing (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).</p> <p>Mr Frikkie Mouton to enquire if old oil etc. (~10 l every six months)</p>	<p>Ongoing.</p> <p>Blaauw's Recycling Plant in Keetmanshoop is not accepting glass bottles anymore.</p> <p>Around five bags (50 kilogrammes each) of waste (including the glass bottles) are disposed of at the Bethanien landfill on a monthly basis (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p>

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
			could be disposed of at the garage in Keetmanshoop for recycling / responsible disposal.	
Waste management: sanitary	Pollution of biophysical environment	Ensure that the discharge of sanitary wastewater to land conform to the regulatory requirements (Ministry of Agriculture, Water and Forestry's (MAWF) Water Quality Standards for Effluent (2008; see Annexure D).	The Owner-Managers of Alte Kalköfen Lodge, submitted an <i>Application for a Wastewater Discharge Licence, in terms of Part 13 of the Water Resources Management Act, 2013</i> to Permanent Secretary, MAWF on 24 April 2019.	The MAWF did not visit the site and neither was a discharge licence obtained (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).
		Note that all toilets are of the flush-type and drain into a French drain. Notices are placed at each toilet to remind guests not to flush foreign objects down the toilet.	All the flush toilets at the Alte Kalköfen Lodge (and including the wastewater from the baths and showers) drain into a French drain system (see Maartens, 2016).	
		Use bio-degradable toilet cleaners that do not kill the bacteria in the septic tanks.	Biotreatment is added (to the French drains) on a weekly basis (see Maartens, 2016).	
<p>The system for the discharge of wastewater is in the process of being upgraded (each French drain – see Figure 5 - has two compartments: one for solids and one for the overflow of wastewater).</p> <p>From bungalow 12, there is an overflow pipe that runs past all the French drains, the Restaurant, and to the Owner-Managers' house, and then drains into a 30,000 litre dam, located in the vegetable garden behind the Owner-Managers' house.</p> <p>Wastewater (overflow) from the Owner-Managers' house, as well as the Staff accommodation, also drain into this dam.</p> <p>Water from the laundry drains into the French drain at the Restaurant; the overflow then also drains into this dam.</p> <p>ConServ Engineering Services was contracted to assist; work to add oxygen to the water in the dam is underway. Ultimately it is foreseen that the overflow from this dam, will be collected in 'n "cone-tank" where the wastewater and clean (recycled) water will be separated. The wastewater will then be used as compost and the recycled water for irrigation.</p> <p>It is planned to plant <i>Marua shinzii</i> (Ringwood) trees in the areas behind the bungalows, and to, at a later stage, introduce bee hives (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).</p> <p><u>Note:</u> on 29 August 2023, the Water Resources Management Act 11 of 2013 was implemented; the Minister made Water Resources Management Regulations 2023. Clients will have 18 months to comply with the Water Resources Management Act and Regulations.</p>				

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
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Figure 5: Picture showing the location (blue circles) of the eight, two-chamber French drains (Source: Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge).

Wastewater management	Pollution of biophysical environment	Minimize the use of the laundry through asking guests to reuse the towels and bedding.	Ongoing Guests mostly stay for one to two days only (and then the bedding and towels are not changed) (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Ongoing
		Control the consumption of cleaning materials. If feasible, substitute cleaning materials with biodegradable products.	Ongoing All cleaning materials are bought from Elso Holdings in Windhoek that notes: <i>“Today Elso complies with internationally good manufacturing practices, we are proud of our ISO certified manufacturing facilities. Our products are scientifically formulated to ensure that they are environmentally safe. We promote ourselves as ... be cleaner, buy greener..buy Namibian.. our chemicals are biodegradable.. this</i>	Ongoing Cleaning materials are currently obtained from Plastic Packaging in Keetmanshoop (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
			<i>all comes together in our motto - for better life.</i> " (see http://elsoholdings.com/).	
		Avoid/minimize the use of cleaning agents that contain phosphates, nitrilotriacetic acid or any of its salts, ethylene diaminetetraacetic acid and ethylene dinitrilotetraacetic acid or any of their salts, alkylphenol ethoxylate, halogenated organic solvents, butoxy-ethanol, and (Volatile Organic Compounds (VOCs) in excess of 10 percent by mass.	Ongoing (see above)	Ongoing
Wastewater management - stormwater management	Soil erosion	Regular inspection and maintenance of permanent erosion and runoff control features.	<i>Ad hoc</i> (rainy season)	<i>Ad hoc</i> (rainy season)
The Alte Kalköfen Lodge: Occupational and Community Health and Safety				
Food quality	Occupational and Community Health and Safety	Apply international standards/implement systems re. the handling, preparation and storage of food, e.g. SANS 10049:2001 (Food Hygiene Management) and/or ISO (International Organization for Standardization) 22000:2018 (Food Safety Management System (FSMS)).	Ongoing The MHSS annually inspects the kitchen and staff are trained in-house re food safety (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.) (even though no formal FSMS is in place, the latter that is not a legal requirement in Namibia).	Ongoing
Indoor air quality	Occupational and Community Health and Safety	Use low VOC-emitting products. Avoid, where possible, the use of aerosols, sprays and air fresheners. Housekeeping and cleaning products to be used during unoccupied hours. HVAC system: conduct periodic, preventive maintenance (incl. cleaning drain pans and changing filters); keep duct lining dry; ensure clean mechanical rooms; and fix leaks and clean spills immediately.	Ongoing The use of aerosols are limited; a biodegradable spray/air freshener is bought from Elso Holdings in Windhoek. Air conditioners have been installed in all 12 of the bungalows during the past three years; a maintenance schedule will be drawn up and records kept (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Ongoing The use of aerosols are limited; a biodegradable spray/air freshener is bought from Plastic Packaging in Keetmanshoop. The air conditioners are serviced once a year by Sentrale Diens from Keetmanshoop (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
Swimming pools	Community Health and Safety	Implement a pool water sanitization programme; the programme should include the monitoring of water quality (also see World Health Organization (WHO), 2006).	The pool is cleaned by hand every three weeks. Blu52 (and chlorine as needed) are added to the pool every Saturday (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm.).	Ongoing. The pool is now cleaned twice a week, and using around one kilogramme (kg) of chlorine and 500 milliliters (ml) Blue 52 Active algaecide (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).

The swimming pool was upgraded during December 2023/January 2024 (see Figure 6; Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm.).



a)



b)



c)



d)

Figure 6: Pictures showing the upgraded swimming pool and deck that was built in December 2023/January 2024 (Source: L. Maartens, 15 February 2024).

Aspect	Impact	Mitigation & Management Measures	Maartens (2019)	Compliance & Comments (March 2024)
Landing Strip				
Community Health and Safety	Social and Environmental Performance	Notice or information boards relating public health and safety hazards and emergency contact details should be put up at the Landing Strip.	The landing strip will be closed in due course (Mr Frikkie Mouton, Owner-Manager, Alte Kalköfen Lodge, pers. comm., 10 May 2019).	The landing strip has not been closed, but is not currently in use (see Maartens, 2019) (Mr Frikkie Mouton, Manager, Alte Kalköfen Lodge, pers. comm., 26 March 2024).
Landing Strip Maintenance	Air quality (dust or Particulate Matter (PM) pollution)	Maintain the landing strip surface to preserve surface characteristics (e.g. texture and roughness). Avoid landing strip maintenance under high wind conditions or when a visible dust plume is present. Use dust control/suppression methods, such as applying water or non-toxic chemicals to minimize dust.		
	Soil erosion	Reduce or prevent soil erosion (if relevant).		
	Occupational and Community Safety	Maintain the landing strip surface to preserve surface characteristics (e.g. texture and roughness). Replace the wind sock (as needed). Paint the boundary demarcation stones (of the landing strip) white.		
	Economical	Ensure that the run-up pad is free of rocks/stones before landing.		
Landing and Takeoff of Aircraft: Fauna/Avifauna on the landing strip	Occupational and Community Safety	Apply wildlife repellent techniques (if necessary), e.g. audio techniques, or visual techniques to scare and repel wildlife.		
Parked Aircraft	Pollution of biophysical environment (air, soil and water)	Aircraft maintenance/servicing/washing not to be allowed on site. Enforce proper waste (hazardous and non-hazardous) management practices. Note that no re-fuelling of aircraft takes place in the area.		

2.3 Compliance: Monitoring and Reporting

In order to illustrate Alte Kalköfen Lodge's compliance with the proposed "monitoring and reporting" (see Maartens, 2016; 2019), the following colour codes were applied:

	Compliance/Completed
	In Progress/Ongoing
	Non-compliance
	Not Applicable (N/A)

Type	Parameter	Frequency	Maartens (2019)	Compliance (March 2024)
Wastewater discharge	As per the Department of Water Affairs (DWA), Ministry of Agriculture, Water and Forestry's (MAWF) Effluent Numeric Requirements	As per DWA effluent discharge permit requirements	<i>An Application for a Wastewater Discharge Licence, in terms of Part 13 of the Water Resources Management Act, 2013 was submitted to Permanent Secretary, MAWF on 24 April 2019</i>	No permit in place
Swimming pool water sanitization	Monitor the water quality to establish treatment need and frequency	<i>Ad hoc</i>	The pool is cleaned by hand three times a week (Mondays, Wednesdays, and Saturdays). Blu52 (and chlorine as needed) are added to the pool every Saturday.	The pool is now cleaned twice a week, and using around one kilogramme (kg) of chlorine and 500 milliliters (ml) Blue 52 Active algacide.
Stormwater and soil erosion	Soil erosion rates	<i>Ad hoc (rainy season)</i>		
Alien invasive plant species	Identification and removal of any alien invasive species	Three-monthly monitoring	It is carried out more frequently than every three months.	
Environmental Management Plan	Environmental performance / corrective measures to be taken as or when required	Internal audits (monthly)	Ongoing, even though no records are not kept	
		External audits (annual)	The Ministry of Environment, and Tourism (MET) to advise whether annual external audits is required (vs one audit report every three years)?	The Ministry of Environment, Forestry and Tourism (MEFT) requires the submission of Bi-Annual Environmental Monitoring Reports

3 Conclusions and Recommendations

The Alte Kalköfen Lodge has been in operation since September 2010.

“Housekeeping” at the Lodge is of a very high standard and the Owner-Managers of Alte Kalköfen Lodge strive and is committed to continually improve their environmental performance. The work done at the Cole Lithoparium / the Lithops Research & Conservation Foundation is highly commendable.

In order to further improve environmental performance at the Alte Kalköfen Lodge, the following is advised that:

- i. The **Health Safety** and **HIV Aids Policies** should be updated, signed and dated, and made available to all staff;
- ii. The Management and Staff at the Lodge should receive formal **first aid training** (including annual refresher courses); and
- iii. The Water Resources Management Act 11 of 2013 and **Water Resources Management Regulations 2023** are to be complied with (by February 2025).

Finally, it is advised that Frikkie and Hilde Mouton (as the Owner-Managers), their contractors and employees should continue to implement and observe the Environmental Management Plan on an ongoing basis. Environmental performance should be regularly monitored (so that the lessons learnt can be incorporated into the improvement of the Environmental Management Plan over time) and corrective measures taken as or when required.



Dr Lima Maartens
LM Environmental Consulting

4 References

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5 Annexure A



REPUBLIC OF NAMIBIA

MINISTRY OF AGRICULTURE, WATER AND FORESTRY

Telephone: (061) 2087183
Fax: (061) 2087227
Enquiries: J N Mouton
Reference: PS 116

Department of Water Affairs
Private Bag 13193
WINDHOEK
NAMIBIA

The Managing Members
Alte Kalköfen Lodge
P O Box 1439
KEETMANSHOOP



Dear Sir/Madam

Attention: Mr Frikkie and Mrs Hilde Mouton

APPLICATION FOR A PERMIT FOR THE ABSTRACTION OF GROUNDWATER FOR LODGE OPERATION PURPOSES ON THE FARM KALKWERK SANDVERHAAR NO. 116, BERSEBA DISTRICT, KARAS REGION.

1. Your application dated 15 May 2019, in the above-mentioned regard, refers.
2. Considering that the property concerned is not situated in a proclaimed subterranean water control area, this Ministry has no objection to the abstraction of water for the above-mentioned purposes.
3. If, however, you want to abstract water from a riverbed or from boreholes directly on its banks for the watering of crops on an area of more than one hectare, you will have to apply for a permit for irrigation in terms of section 7 (aA) of the Water Act, 1956 (Act 54 of 1956), as amended.
4. If you want to sell or give water to someone else for any purpose on any other property, you will also have to apply for such a permit in terms of section 5(2)(a) of the said Act.

All official correspondence must be addressed to the Executive Director

2.

5. Your attention is also drawn to the fact that if large scale abstraction of water for irrigation purposes will cause undue depletion of the water table on neighbouring farms in future, you will probably be exposed to claims by such farmers. In such an event the area concerned will have to be proclaimed as a subterranean water control area in terms of section 28 (1) of the Water Act, 1956 (Act 54 of 1956).

Yours Sincerely



Mr F Witbooi
**DEPUTY DIRECTOR:
POLICY AND WATER LAW ADMINISTRATION**

