Environmental Management Plan

Salt Mining - Mile 68 Salt Pan

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ABREVIATIONS

DWA	Department of Water Affairs
EA	Environmental Audit
EAP	Environmental Assessment Practitioner
ED	Environmental Control Officer
ECP	Environmental Control Procedure
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ERP	Emergency Response Plan
MEFT	Ministry of Environment, Forestry & Tourism
ML	Mining License
MME	Ministry of Mines & Energy
MSDS	Materials Safety Data Sheet
PM	Project Manager
RA	Roads Authority

1. Introduction

1.1 Project background

Gecko Salt (Pty) Ltd (Gecko) plans to develop a solar salt production facility at the Mile 68 salt pan. The saline pan lies within the Dorob National Park along the central coastline north of the town of Henties Bay. Gecko was granted an exploration licence (EPL4426) over this pan and its surrounding in 2015. The company intends to apply for a mining licence over the area for producing salt on the saline pan. The envisaged development includes a 13-kilometre-long brine pipeline from Gecko's Mining Licence at Cape Cross (ML210) to the future solar salt production facility at Mile 68.

Gecko plans to construct crystallisers within the salt pan, pump brine along a pipeline from the Cape Cross salt pan, develop an accessory works area and complete the development of a new section of coastal road.

The area around the saline pan has been disturbed to varying degrees over many decades. This includes multiple roads and vehicle tracks for access to the saline pan for mining and to the beach for fishing. Originally the area formed part of the Cape Cross Farm 143. The gravel plains and washes around the pan fell prey to various types of disturbance, namely, the clearing of areas for the construction of buildings utilised for mining and later for tourism. In recent times since 2015, the holder of mining licence 82D, 82E and 82F, started up salt mining activities in the form of salt crystalliser and accessory works construction activities, all within the extent of Gecko's EPL. Gecko plans to develop crystallisers alongside the existing mining licence holder and develop accessory works alongside theirs.

The main motivation for the project is to achieve the necessary economy of scale for a successful outcome for the salt projects in the greater Cape Cross area.

Refer to the "EIA Scoping Report with Assessment for the Mile 68 Salt Project" for further details on the proposed project activities and facilities / infrastructure.

1.2 Environmental Impact Assessment (EIA) Process

Project Screening

At the start of the project, and confirmed through site visits and public participation, aspects were evaluated for their need to conduct in depths assessment. This screening determined the terms of reference of the impact assessment phase. Specialists were commissioned to undertake baseline studies and impact assessment The study findings are presented in the Environmental Scoping Report with Assessment (ESR).

Public Participation

A public consultation process was conducted (as outlined in the above mentioned report), whereby Interested and Affected Parties (I&APs) were identified, informed about the proposed project activities and allowed an opportunity to ask questions and raise their various concerns. Upon completion of the Environmental Scoping Report (ESR) and drafting of the environmental management plan (EMP) (this document) the I&APs have had an opportunity to provide additional input during the public review period.

Assessment of potential impacts

Based on the final screening process the following specialist studies were included:

1. Flora Assessment Study

2. Fauna Assessment Study
3. Marine Ecology Assessment Study
4. Archaeology Assessment Study
5. Traffic Assessment Study

An assessment of potential impacts on the socio-economic environment was based on the study carried out by Ashby and associates for the nearby Gecko Salt Cape Cross salt mining project. Mitigation measures and monitoring requirements for all the other aspects are incorporated into the EMP.

Alternatives for the various aspects of the envisaged development were discussed with the individual specialists and, based on their input, with due consideration of the comments received by the public and stakeholders and the proponent's development plan, the options were described. Options were weighed in the assessments phase.

The preferred project alternatives were fixed as follows:

- The project location at Mile 68 salt pan is vital to the success of the Cape Cross salt project.
- Placement of the brine pipeline would be on the east side of the coastal road.
- The brine pipeline would lie on the surface.
- Only one bitterns discharge pipeline / outlet would be constructed.
- Re-routing of the road goes ahead as planned. The two re-routing options to the east of the current coastal road were assessed by the specialist engineer.

The specialist studies can be found in Error! Reference source not found. of the Scoping Report with Assessment. Summaries from the specialist work and assessment are given in the main Scoping Report with Assessment. The Traffic Safety study is not reproduced in full here but must be referenced when implementing the EMP.

2. Environmental Management Plan (EMP)

The main purpose of this Environmental Management Plan (EMP) is to provide a strategy for environmental protection whereby all the activities and identified / assessed environmental aspects and potential impacts associated with Gecko Salt's (proponent) operations within the envisaged future mining licence at the Mile 68 salt pan are regarded.

The activities that occur within the mining licence areas and leading to or around the mining licence area are as follows:

- The production, harvesting and processing of salt at Mile 68 Salt Pan;
- The construction and operation of a brine pipeline from Cape Cross Salt Pan;
- The re-routing of a section of the coastal road around the Mile 68 Salt Pan.

This is to ensure that time and resources are not wasted and that problems occurring during Gecko's operations are identified and rectified to prevent damage to the environment.

The present EMP addresses specific impacts identified in the ESR and the actions required to mitigate negative impacts or enhance positive effects.

Other aspects that were not assessed in detail with the ESR have been included in the EMP as standard aspects that require mitigations, monitoring and reporting as per best practice and legal requirements.

If any issues were overlooked, the plan must be amended in consultation with the proponent and regulatory authorities. The EMP therefore aims to ensure that:

- the Gecko's operations are managed efficiently and effectively to reduce or avoid negative impacts and enhance positive impacts of the operations;
- the affected communities are better off due to the continued operations of the project;
- precautions against environmental damage are considered timeously and claims are put into action speedily;
- information flow between all responsible persons is optimised to ensure all are aware of their particular responsibilities;
- involve the local community by employing unskilled and/or skilled labour;
- maintain the integrity of the mining licence area

The EMP will be effectively implemented, if:

- mitigation measures are successively applied during operations, construction and decommissioning;
- the responsibilities are assigned to skilled individuals, groups, and government agencies;
- EMP guidelines are properly communicated to all responsible parties;
- training for implementing the mitigation measures is carried out when personnel require such education;
- the monitoring programmes are adhered to;
- progress, training and monitoring reports are submitted to management and relevant government authorities

The Environmental Management Act and Regulations require that an environmental management plan for mining activities be developed (see Legal Section of the ESR).

Eco-tourism related activities could benefit from gaining access to the saltpan areas for bird watching. Any access to the main operational areas must be restricted for public safety sake and may only allow tourist access by appointment and with a company escort.

The proponent recognises the conservation management guidelines of the Dorob National Park and commits to uphold the conservation of biodiversity as per the specific conditions that the Park

Management's Team and MEFT lay down as part of the EMP requirements. Accepted mitigation measures concerned with the management of the Gecko's activities are to:

- delineate no-go areas that conserve biodiversity;
- establish a plan layout for crystalliser ponds for solar salt operations which allows for sustainable use of the resource;
- remove solid waste and dispose at an authorised landfill or hazardous waste facility;
- maintain sustainable operating practices e.g. waste recycling, rehabilitate contaminated soil.

2.1 Keeping the EMP current

It is the intention that this EMP should be seen as a "living document" which will be amended during the operation, as the activities might change or new ones be introduced. Section 50 (g) of the Minerals (Mining and Prospecting) Act, 33 of 1992 states that the holder of a mining license shall undertake the periodic review of the EMP(s), should circumstances change. In this regard the EMP should be regularly reviewed and amended to ensure that the management and mitigation measures are relevant to the operation and effective in limiting negative impacts and enhancing positive impacts.

However, should a listed activity(s) as defined in the Environmental Impact Assessment Regulations: Environmental Management Act (EMA), 2007 (Government Gazette No. 4878) be triggered (as a result of future modifications/changes at the salt operations), this EMP will be required to be updated through another EIA process as stipulated in the EMA and its Regulations.

Whilst many of the anticipated environmental impacts have been identified in the EIA, there are possibly other impacts that arise from the Gecko's operations. These should be identified and considered during the annual review process and included in any EIA and EMP updates.

2.2 Details of the person who prepared the EMP

Gecko appointed Philip Hooks, an independent Environmental Assessment Practitioner (EAP), to undertake the assessment and compile the ESR and this EMP in support of the application for environmental clearance. The curriculum vita of the EAP is provided in **Error! Reference source not found.** of the ESR.

3. Responsibilities, Capacity Building and Training Requirements

3.1 Responsibilities

The main stakeholders that are responsible for specific aspects of the EMP's implementation or to whom the responsibility reports:

Gecko (Pty) Ltd

- **General Manager (GM);**
- **Environmental Department (ED)**

Competent Authorities

- Environmental authority - Ministry of Environment, Forestry & Tourism (**MEFT**)
- Department of Water Affairs (**DWA**)
- Ministry of Mines & Energy (**MME**)
- Ministry of Fisheries & Marine Resources (**MFMR**)

The roles and responsibilities of each individual / party are summarised in **Table 1**.

3.2 Capacity Building and Training Requirements

The proponent is responsible to ensure all personnel are trained on all the company Health, Safety and Environment (HSE) policies relevant to the site and operations ongoing. This includes the commitments in this EMP and rules laid down by the Dorob National Park. The plant equipment technical team must be trained to maintain the plant. HSE manuals must be available on site at all times. Material Safety Data Sheets (MSDS) are to be available for quick reference.

Where the capacity of the personnel is insufficient the proponent must take up the responsibility to build capacity especially where compliance to HSE issues are lacking. For this EMP to be successful, compliance monitoring is essential. Reporting the data from the monitoring to the environmental authority will be necessary in order to show that capacity building and training has been carried out.

Table 1. Roles and responsibilities of each individual and/or party for the implementation of the EMP

PARTY	ROLE	RESPONSIBILITY & ACCOUNTABILITY
Gecko Salt's General Manager (GM)	The GM / PM bears the ultimate responsibility for the mining operations and is thus responsible for environmental performance and the implementation of this EMP.	Must be informed of environmental issues and impacts of all operations (existing and future) and the resultant effect that such activities have on the environment; Responsible for maintaining compliance to the EMP; Require the **ED** to fulfil its role and report to the GM regularly.
Gecko Salt's Environmental Department (ED)	Monitor the implementation of the EMP as well as to identify potential impacts not identified in the EMP so that it can be reviewed and updated.	Brief contractors about the requirements of the EMP; Provide technical advice relating to environmental issues to the company's **General Manager (GM)**; Undertake periodic audits of the effectiveness of the environmental mitigation measures on the site; Keep a record of activities on site with a operation's diary and site photographs; Receive the site monitoring results of the MLs biology and chemistry; Ensure that heritage sites are cordoned off from all activities with appropriate barriers; Develop and implement the Environmental Management System (EMS); coordination, monitoring and consultation with stakeholders and personnel, including the promotion of environmental management competence and providing risk assessment expertise; undertake environmental surveys; set environmental objectives and targets; monitoring of systems to ensure compliance to legislation and company policies; to facilitate updating of the environmental management process and ascertaining the state of environmental risk and performance; compile bi-annual reports for MEFT; ensuring that all personnel undergo environmental awareness training as per company environmental standards; coordinate internal and external environmental audits
MEFT	National Environmental Enforcing Agents	Enforcement of Environmental Regulations; Enforcing EMP compliance
DWA	Permitting authority for sea water and groundwater abstraction and effluent discharges into the sea or on land	Water Affairs is in charge of prevention and prohibition of all violations of national legislation concerning natural water bodies; They issue permits for abstraction and discharge.
MME	Issuing authority for mining licenses.	Responsible for the regulatory stipulations pertaining to the Minerals Act.
External Specialist	Third party audits	Gecko Salt may appoint external environmental specialists, as and when required, to assist with the implementation of certain commitments made in the various management plans. As independent auditor will also assess compliance against the EMP on an annual basis.

4. Environmental Management System

The EMP guidelines provide a framework for creating a process and document control system. This system is commonly referred to as an Environmental Management System (EMS). This system includes the aspects of monitoring and reporting as outlined in the EMP guidelines. Some of the EMS documentation elements are described below. The detailed documentation for every environmental aspect needs to be developed by the ED.

4.1 Monitoring

It is imperative that the Environmental Scoping Report with Assessment be consulted to supplement the implementation of this EMP especially when considering the minimum mitigation measures that must be implemented.

The ED must take up the training, monitoring and reporting responsibility. It is important that the monitoring of the necessary environmental aspects of the Gecko's operations is undertaken as well as regular inspections. The main purpose of monitoring is to ensure that the prescribed mitigation measures / actions in the EMP are complied with. The ED should write up a monitoring report on a monthly basis. This can be compiled from the environmental control data sheet records.

The environmental control data sheets need to be compiled in conjunction with the Environmental Control Procedure (ECP). Thereafter the environmental control data sheets can be drafted and used on a daily, weekly or ad hoc basis depending on the need. This data is used to write up the internal environmental reports.

4.2 Audits & Reporting

Compliance with the EMP can be measured by means of periodic internal environmental audits. It is recommended that an internal environmental audit be undertaken at least every 6 months. The first audit should take place within 6 months of receipt of the environmental clearance certificate. The environmental audit (EA) reports can be compiled from the monthly monitoring reports and inspections. The proponent's supervisor GM will assess if the contractor is compliant with the EMP's guidelines and contract. The ED must submit a environmental report to the MEFT every 6 months.

The external specialist should be approached to undertake an independent EA. Every three years the EAP should integrate the environmental audits into the application to renew the environmental clearance certificate. The updated EIA report should include an assessment of the impacts based on the internal EA reports and compliance to the EMP. This is to be submitted to the MEFT with the application for renewal of the ECC.

4.3 Permitting

The Department of Water Affairs requires monitoring reports to be submitted as per the permits that are issued for water abstraction and effluent discharge.

5. EMP IMPLEMENTATION GUIDELINES

The following section (**Tables 2 to 10**) describes the main potential impacts as well as necessary measures to mitigate and/or enhance the potentially significant bio-physical and socio-economic environmental impacts during implementation of each aspect of:

- Construction and operation of the crystallisers, processing plant, bitterns discharge pipeline
- Construction and operation of the brine pipeline;
- Construction of the re-routed road with new intersection into the mining licence area.

The mitigations and monitoring actions for each of the potential environmental impacts of each activity in the mining licence area have been subdivided for the various aspects of the operations. This operational EMP categorises aspects into loosely defined phases of planning, construction, operation and decommissioning phases. These phases are applicable in the following ways:

- elements of the **planning phase** apply to the ESR preparation, the review process, permit and certificate renewal periods;
- the establishment of the activities on site and the construction of infrastructure or equipment is covered under the **construction phase**;
- after this construction phase the operational activities fall within the **operational phase**;
- should any of the activities discussed in the ESR ever permanently discontinue then the **decommissioning phase** section will be applicable; in particular the application of any monetary fund for the rehabilitation of the mining licence area and the pipeline route.

It is important and a requirement that the Environmental Scoping Report with Assessment be consulted and used to inform the Environmental Department how the proponent should implement the mitigation measures.

Table 2. Potential Noise Impacts of Project Activities at Mile 68 Salt Pan during the Construction, Operational and Decommissioning phases. (Authority refers to the responsible person / party)

NOISE MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
PLANNING PHASE				
Organisms with increased sensitivity to noise can be disturbed or prolonged exposure can lead to hearing damage	Ensure noise levels do not exceed 60dBA for workers on site should not be exposed to more than 110 dBA during a 24 hour period.	Noise monitoring plan is on file. Occupational health policy is on file	PROPONENT / EAP	MEFT / MME
Noise impact of inappropriate siting of crystallisers, wash dams and channels, salt processing plant, salt harvesting, accessory works. Mine processing plant is very remote with no residential areas within a 10km radius. Impacts are negligible or insignificant.	Mitigations need to be planned. Maintenance plans for all equipment will ensure that noise impacts for personnel and tourists with result in negligible health and nuisance effects.	Noise monitoring plan is on file. Occupational health policy is on file.	PROPONENT / EAP	MEFT
CONSTRUCTION PHASE				
Noise impact of expansion activities at the salt pan is expected to be negligible provided industry standards are maintained.	No noise measurements as part of a monitoring programme are deemed necessary. If complaints regarding noise are received: ➢ Measure noise levels in surrounding areas attributable to the plant under various operating conditions and at various times; ➢ Investigate and, if required, implement further noise reduction measures. Maintain all sound proofing, silencers and other equipment in good working order to minimise excess noise.	**Monitoring:** ➢ Keep a register of all complaints received and remediation action taken. ➢ Compile all information in an annual report. **Performance Indicator:** Number of registered complaints	ED	PROPONENT / Ministry of Labour

NOISE MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
OPERATIONAL PHASE				
Noise impact of operational activities at the salt pan is expected to be negligible.	No noise measurements as part of a monitoring programme are deemed necessary. If complaints regarding noise are received: ➢ Measure noise levels in surrounding areas attributable to the plant under various operating conditions and at various times; ➢ Investigate and, if required, implement further noise reduction measures. Maintain all sound proofing, silencers and other equipment in good working order to minimise excess noise.	**Monitoring:** ➢ Keep a register of all complaints received and remediation action taken. ➢ Compile all information in an annual report. **Performance Indicator:** Number of registered complaints	ED	PROPONENT / Ministry of Labour
DECOMMISSIONING PHASE				
Machinery used during this phase could create excessive noise. The impact significance associated with the decommissioning phase will be less depending on potential changes to the ambient noise levels over the life of the projects.	Machinery is to be maintained in a state that ensures no excessive noise is created. Personnel are to wear PPE to reduce the exposure to noise levels in excess of 85dbs	A register of complaints should be kept on file. A summary of the issues should be included in the annual report.	PROPONENT	MEFT / MME

Table 3. Potential Visual Impacts of the Project Activities at the Mile 68 Salt Pan, during Planning, Construction, Operational and Decommissioning Phases. (Authority refers to the responsible person / party)

VISUAL MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
PLANNING PHASE				
SALT MINING (INCLUDING BITTERNS DISCHARGE)				
Visual impact of inappropriate siting of crystallisers, wash dams and channels, salt processing plant, accessory works. Mine processing plant is very remote with no residential areas within a 3km radius. Impacts are negligible or insignificant.	Mitigations need to be planned. The infrastructure should blend into the environment by making use of colours that blend in with the surroundings.	Visual baseline in the form of a photo survey should be undertaken.	PROPONENT / EAP	MEFT
BRINE PIPELINE				
The brine pipeline will be visible on the eastern side of the road.	Plan for the pipeline to painted a colour that makes it blend into the surrounding environment.	Visual baseline in the form of a photo survey should be undertaken.	PROPONENT / EAP	MEFT
ROAD RE-ROUTING				
The new route will improve the visual impact in that the operations on the salt pan will be less visible as they will be further from the road.	The current site access road was established decades earlier and is fully operational. The new route will take any tourists and general public around the salt pan.	Visual baseline in the form of a photo survey should be undertaken.	PROPONENT / EAP	MEFT
CONSTRUCTION PHASE				
SALT MINING (CRYSTALLISER DEVELOPMENT, BRINE PIPELINE, BITTERNS DISCHARGE STRUCTURE)				
Visual impact of increasing the number of crystalliser ponds could affect tourism. Unlikely to affect tourism activities due to remoteness of the mining licence area and the fact that the new road route sets the pan further away. Additional pans would attract more birdlife which could benefit tourism and birdwatchers in the area.	Ensure site area is organised and clear of solid wastes; Restricted access for public safety reduces exposure of the solar salt operations to tourists; access by visitors for a tour of the operations must be by appointment;	Carry out audits and report findings; Keep a visitors' log	GM / ECO	PROPONENT

VISUAL MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
OPERATIONAL PHASE				
SALT MINING OPERATIONS				
Visual impact of increasing the number of crystallisers at the pan on tourism. Unlikely to affect tourism activities due to remoteness of the mining licence area. The boundaries of each crystalliser will not exceed 3m above the pan.	Ensure site area is organised and clear of solid wastes; Restricted access for public safety reduces exposure of the solar salt operations to tourists; access by visitors for a tour of the operations must be by appointment; access to actual expansion area sites is prohibited. Bird watching from the perimeter of the pans within the mining licence area is permissible. Access roads to popular fishing spots allow for this bird watching activity.	Carry out audits and report findings; Keep a visitors log	GM / ED	PROPONENT
BRINE PIPELINE				
The pipeline needs to be kept in good repair so that it does not become an eyesore.	Maintain the pipeline in good repair.	Visual baseline in the form of a photo survey should be undertaken.	PROPONENT / ED	MEFT
DECOMMISSIONING PHASE				
INFRASTRUCTURE REMOVAL & LANDSCAPING				
Dilapidated buildings after closure inside the Dorob National Park would create an unpleasant visual environment for decades.	All movable infrastructures should be removed. Buildings should be demolished, and the rubble taken to a landfill site. Landscaping of unsightly mining areas should be carried out.	A final photo survey should be undertaken and reported on.	PROPONENT	MME / MEFT

Table 4. Potential Socio-Economic Impacts of the Project Activities at Mile 68 Salt Pan. during Planning, Construction, Operational And Decommissioning Phases.

SOCIO-ECONOMIC MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
NATURE OF ENVIRONMENTAL IMPACT			
SOCIAL & ECONOMIC The proposed salt production facility will contribute towards the achievement of NDP5 in creating value-addition to Namibia's raw materials and in creating jobs. The project will make a long-term contribution to the local, regional and national economy as operations could potentially continue for many decades. It is recommended that mine and processing staff live permanently in Henties Bay and commute daily to the salt works; on site accommodation should only be used for a limited compliment of personnel that may be required for maintenance or shift work. This will maximise benefits to the local economy and to employees' families. Gecko's salaries and benefits package must encourage home ownership which will help improve the housing stock. It is recommended that haulage truck operators should live in all three coastal towns to maximise the continuous flow of trucks yet enable the drivers to maintain a stable family life. Overall, salt mining and salt processing will bring much needed, stable, socio-economic benefits to the local communities. Gecko is already active in the area as a sub-contractor for other mining licences and with its own mining licence 210. The Mile 68 project will at the very least supplement the ML210 salt production but could cumulatively add to increasing the overall salt production. **LAND USE** Salt production, tourism and restricted access to conservation areas have co-existed for many years at the Mile-68 Salt Pan. There is a risk that increases in mining rates, processing and haulage may impact on the wider area's sense of place. This needs to be carefully monitored and if negative impacts are too significant, mitigation measures may be needed such as a moratorium on night-time activities. Gecko must take the lead in engaging with local stakeholders to maximise synergies which will benefit all parties in the area. Three distinct land uses within the EPL are considered: 1.Key priority conservation area – maintaining a "sense of place" is essential. Closely aligned with that is: 2. Low impact, eco-friendly tourism – which depends on the conservation areas and historical industrial remains as draw cards. 3. Mining for salt alongside other mineral rights holders.			

SOCIO-ECONOMIC MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
Land use 1: Key priority conservation areas (relevant to Biodiversity chapter) The proposed project lies within the Dorob National Park. The Mile 68 salt pan is a brownfield site, having been mined for about 100 years for salt. The actual saline pan where the proposed crystallizers will be constructed are low in biodiversity. ***Land use 2: Low impact, recreational fishing and tourism*** The beach alongside the Mile 68 saline pan is used by recreational fishermen. Further to the north tourists visit the seal colony via the costal road. This attracted over 40,000 visitors in 2015 who paid over N$3 million in park entrance fees to government. Most are day visitors while the Cape Cross Lodge promotes birding and historical tourism to entice overnight visitors. North east of Mile 68, there is a popular spot called the 'The Dead Sea' where an old excavation has filled with brine and bathers float in the small pool enjoying the additional buoyancy similar to the real Dead Sea in Israel. ***Land use 3: Gossow Holdings (Pty) Ltd - Mining Licence 82D,E & F*** Gossow Holdings (Pty) Ltd exercises a right to mine on the Mile 68 saline pan. Gecko Salt (Pty) Ltd has devised a plan to also mine salt on the same pan using a similar method of salt crystallisation. The crystallisers have been planned to encompass those crystallisers constructed by Gossow Holdings (Pty) Ltd. Gecko will import the brine for their crystallisers and salt production from their Cape Cross Mining Licence area. Gossow developed a strategy to abstract brine from the Mile 68 saline pan itself. Gecko is disputing the extent of Gossow's crystallisers and once the courts have provided a verdict a plan of working side by side will need to be devised for joint use of the pan to take place			
PLANNING PHASE			
SOCIO ECONOMIC Plan to support the country's national objective of sustained economic growth, by maximising use of labour, products and services from the poorest communities, within the Erongo Region and Namibia as a whole. Plan several ways to strengthen the positive impacts, so the project brings greater benefits to the local communities most affected by the salt production and to the country. The proposed enhancement measures focus on Gecko taking proactive responsibility to maximise positive impacts which should increase government and stakeholder support for the company and favourable publicity for the company. Mining is planned for daylight hours whilst processing is planned to use 12 hour shifts, 24 hours/day and 7 days/week. The routine nature of much of the work and these long working hours will require stringent processing safety standards and human resources retention initiatives. These long hours will be tough on maintaining quality family life, whether male or female, and will be even longer if there is additional travelling time home at the end of 12 hour shifts. *The following action plan aspects are necessary:*	Company policies and plans to be on file.	PROPONENT	MEFT

SOCIO-ECONOMIC MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
1. Pay attractive salaries and wages; 2. Have procurement policies that give preference to the purchase of Namibian-made goods; 3. Assist the development of small and medium enterprises (SMEs) and other local suppliers to produce and deliver goods and services at a fair price; 4. Plan to use small-scale contractors and labour-intensive work, where possible; 5. Plans to accommodate personnel at a permanent accommodation camp should be drawn up according to the requirements of the competent authority. 6. Locate and design staff housing with minimal impact; 7. Plan to minimise accommodation on site so that employees can boost the local economies in nearby settlements;			
LAND USE A company policy based on best practice should be used to develop the company's plan to best manage relationships with the various stakeholders whether they are competent authorities, management committees or neighbouring mineral rights holders. Plan to have discussions with neighbouring land users before and during the construction phases of developing the linear infrastructures	Plans and amended plans are to be filed.	PROPONENT / External Specialist	MEFT / MME
CONSTRUCTION & OPERATIONAL PHASES			
SOCIO ECONOMIC Enhancement objective 1: maximise employment and skills development opportunities, giving preference to people from Henties Bay and then from the rest of the Erongo Region, thus enhancing increase the positive significance of the impacts even further. Enhancement objective 2: minimise an influx of job-seekers and employees from outside the area thereby reducing the pressure on the existing housing stock and schools. *The following mitigations are necessary:* 1. Set up favourable salary packages which will encourage employees to invest in housing in Henties Bay and the other coastal towns along the transport route which will improve the housing stock. 2. Establish orientation programmes for machine and truck operators. 3. Only provide site housing for staff who do not have permanent accommodation in Henties Bay and for those who have dependents who would benefit from them being at home every night.	Include the employee statistics in the annual audit showing long term trends.	PROPONENT / ED	Ministry of Labour

SOCIO-ECONOMIC MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
4. Give priority to recruiting from Omdel and Omdel informal residents where 34% and 30% of the population respectively have Grade 10 and above. This will make an even greater impact on improving livelihoods amongst the poorest communities, which will be greatly appreciated by government and local stakeholders. 5. Give preference for recruiting unskilled and semi-skilled workers from Henties Bay, provide them with training, and widely publicise such to reduce an influx of job-seekers who would have increased pressure on the housing shortfall in Omdel and !Oas. 6. Give preference for the selection of women for training and recruitment and will develop a human resource policy which supports women to perform well in the workplace while balancing their other duties in the family and community; 7. Give preference during the lifespan of the project to support government's priority to focus recruitment and corporate social responsibility on the most deprived constituencies in the region to address poverty, inequality and exclusion. 8. Adhere to the Namibian Chamber of Mines Mining Charter, which states that mining companies must invest at least 2% of their annual gross payrolls every year in developing the skills of Historically Disadvantaged Namibians (HDN) employees and other HDNs; 9. Ensure that employees, and those of its mining and plant contractors, are paid market related wages, with housing allowances that can promote home ownership and contributions to pension contributions and medical aid; 10. Adhere to the International Finance Corporation's Performance Standard Two on labour and working conditions and "recognise that the pursuit of economic growth through employment creation and income generation should be accompanied by protection of the fundamental rights of workers".			
LAND USE The objective is to minimise land use conflict within the Mile 68 area and develop positive synergies. The following mitigation and enhancement measures should reduce the consequence and significance of the project on other land uses to medium. *The following actions need to be implemented:* 1. Strive to minimise the disturbance to the sense of place of tourists passing by along the coastal road. 2. Monitor the impacts of night-time mining and processing on biodiversity and eco-tourism. If local stakeholders find these impacts harmful to biodiversity and eco-tourism, Gecko could introduce mitigation measures such as a moratorium on night-time activities. Lighting needs to point downwards and not up so that migratory birds are not affected at night. 3. Maintain good relations with the neighbouring license holder on the Mile 68 salt pan. 4. Maintain discussions with neighbouring land users during the design and implementation stages of developing the linear infrastructures	Records of complaints, discussions and meeting minutes are on file.	PROPONENT / ED	PROPONENT / MEFT
DECOMMISSIONING PHASE			

SOCIO-ECONOMIC MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
SOCIO-ECONOMIC The loss of employment, should the project close, will have a long-term negative impact. However, reliable and experienced machine and truck operators have transferable skills which are sought after by other employers. An unexpected closure could lead to a sudden loss of jobs. To mitigate this situation and mine closure Gecko should:- 1. At any point it seem likely that the mine may have to cease operations early and / or go into care and maintenance, the employees, suppliers and all other relevant stakeholders should be informed promptly and given enough time to make financial adjustments. 2. Encourage and enable employees to diversify and upgrade skills so they benefit from being able to offer labour flexibility and productivity throughout the lifetime of the project and particularly should it close; 3. Ensure that the facility closure plan is understood by the workforce and guarantees final salary pay-outs and pension transfers. 4. As part of its CSR programme, offer training on personal financial management to all employees so they are better able to adapt to changes in their circumstances; 5. Ensure skills upgrading during employment is documented and accredited where possible so skills are recognised with future employers.	Include the employee statistics in the annual audit showing long term trends.	PROPONENT / ED	Ministry of Labour
LAND USE Emergency or planned closure will have an impact on these other land users. Emergencies could be brought about economic or natural forces beyond the control of the company. As a result, the benefits from the project could be reduced or cease. This may have negative business impacts, such as to local buyer for raw salt or loss of income to the lodge. A reduction of any negative impacts, such as noise and traffic will restore any loss of the sense of place to current 'baseline' levels. *The following action needs to be implemented:* 1. Have a stakeholder engagement plan to inform neighbours as early as possible of any possible closure.	Minutes of meetings and records of discussions are placed on file.	PROPONENT / ED	PROPONENT / MEFT

Table 5. Potential Biodiversity Impacts of the Project Activities at Mile 68 Salt Pan. During Planning, Construction, Operational And Decommissioning Phases. (Authority refers to the responsible person / party)

BIODIVERSITY MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
NATURE OF ENVIRONMENTAL IMPACT / ASPECT / RISK			
The biodiversity studies identified 5 habitats based on the terrain and physical features. These are as follows: ➢ Rock outcrops ➢ Saline pan ➢ Coastal Hummocks ➢ Gravel plains ➢ Washes The rock outcrops and the coastal hummock dunes were deemed the most sensitive. The accessory works area covered an area consisting of gravel plain and rock outcrops that represent disturbed environments to the east of the saline pan. Most of the mining activity will take place within the saline pan and secondly on the gravel plain adjacent to the saline pan. These 2 habitats have been disturbed over the preceding decades. The assessment considered all project activities and how they could potentially impact the various habitats. The impacts on the **floral** (**plant and lichen) biodiversity** of the salt production on the *salt pan* and construction of infrastructure within the planned *accessory works area* was deemed to be low provided the mitigation measures are implemented during the various phases of the project's existence. The impacts on the plant and lichen biodiversity of the construction and operation of the *new road section* and *brine pipeline* was also deemed to be low provided the mitigation measures are implemented by the company. For the **faunal biodiversity** the following summary points are applicable: ➢ The coastal hummock dunes are considered as very sensitive habitat. With the exception of the proposed bittern pipeline, the dune hummock belt should be designated a no-go area. No development should be allowed in the dune hummocks except the bittern pipelines and an access corridor that will allow routine maintenance. ➢ The saline pan is considered least sensitive. Regular monitoring of these brine ponds should take place during the mining operations. ➢ The gravel plains are sensitive but of low concern, if activities remain within the proposed boundaries of the operational and accessory works area. ➢ The washes are deemed sensitive areas. Neither the crystallisers nor the accessory works area will intrude into this habitat. Only the brine pipeline will pass through a few washes along the disturbed environment of the road reserve. ➢ The rock outcrops are considered very sensitive. The accessory works area, although small in surface area, will be located where rock outcrops occur, and these individual spots should be avoided. From the historical and recent satellite imagery it is evident that much of the rock outcrops within the accessory works area has been disturbed. For **marine ecology** the following was considered relevant to the development: Taking into account the characteristics of the bitterns discharge from the salt works, potential impacts are most likely to target marine ecosystems in the immediate vicinity of the discharge and beneficial uses that rely on the health of marine organisms and plants, such as recreational angling. Certain areas of special interest that may potentially be impacted by the discharge of bitterns into the marine environment were identified. The specific area affected is the natural intertidal and shallow subtidal beach environments adjacent to the discharge site.			
PLANNING PHASE			

BIODIVERSITY MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
SALT MINING (CRYSTALLISER DEVELOPMENT, PROCESSING PLANT, FUEL STORAGE, BRINE PIPELINE & BITTERNS DISCHARGE PIPELINE)			
➢ Screen project scope ➢ Undertake an environmental scoping and impact assessment; ➢ Write up a Scoping Report with Assessment; ➢ Draft an EMP; ➢ Develop an Environmental Management System (EMS) based on the approved EMP;	Record of Decision / EMP approved – documents filed. Schedule for developing the EMS documentation on then place on file.	PROPONENT / EAP	MEFT/ MME
Awareness of public and government departments regarding the Salt Mining Project at Mile 68. Mining Activities within the Mile 68 salt pan have existed for decades and all neighbours and stakeholders are aware of the existing solar salt operations.	Public consultation response report once completed should be sent out to registered interested and affected parties (IAPs).	PROPONENT / EAP	MEFT/MFMR
CONSTRUCTION PHASE			
SALT MINING (CRYSTALLISER DEVELOPMENT, PROCESSING PLANT & BUILDINGS, ROAD RE-ROUTING, BRINE PIPELINE, BITTERNS DISCHARGE PIPELINE & FUEL STORAGE)			
➢ The spatial extent of the crystallisers should be kept to within the saline pan area as planned. ➢ The accessory works area for the processing plant, product stockpiling, workshops, shift workers camp and offices must be allocated to the planned area only and any rocky outcrops within this predominantly gravel plain habitat must not be removed or constructed upon. The planning of the mine accessory works area layout must endeavour to reduce the footprint to a minimum ➢ Driving is only allowed on existing tracks as per Dorob National Park rules. ➢ Limit the access point through the coastal hummocks and minimise the routes through rock outcrop areas to only that which is necessary. ➢ Strictly keep all development in the southern sector of the saline pan within the boundary of the saline pan. No roads or pipelines may be developed in the gravel plains in the southern sector of the mining licence as this is part of the strict nature reserve area of the Dorob National Park. ➢ Do not expand to the east/northeast of the planned diversion road or planned accessory works area. ➢ Provide ablution facilities and train staff and contractor staff about indiscriminate defecating. ➢ A survey of the breeding Damara Terns is required for the areas previously surveyed and mapped. This will provide a baseline prior to the expansion of the works in the southern sector of the salt pan.	Check that actual crystalliser pond layout matches map and does not extend beyond the saline pan extent. Check list updated weekly and filed. Monitor compliance and file report.	GM /ED	PROPONENT
BRINE PIPELINE			

BIODIVERSITY MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
➢ The brine pipeline from Cape Cross should be built on the edge of the road reserve as this land has already been disturbed. ➢ Placement of the pipeline on the eastern edge of the road reserve acts as a barrier to off-road driving into the strict nature reserve area of the Dorob National Park north east of the planned mining licence area. ➢ The pipeline will lie above ground and preferably slightly elevated and lie on concrete plinths at intervals according to the engineering design and strength of the PVC pipeline. This will allow smaller vertebrates to pass unhindered and the total height will not hinder larger mammals from jumping over the barrier. The latter would act as a clear boundary and restrict access by vehicles into the strict nature reserve east of the road. Ultimately, the Roads authority and the Dorob National Park management team's requirements needs must be met. ➢ The pipeline should be constructed within the road reserve and no pristine habitat should be affected during the construction phase ➢ A survey of the breeding Damara Terns is required for the areas previously surveyed and mapped. This will provide a baseline prior to the expansion of the works in the southern sector of the salt pan.	Monitor compliance and file report.	GM / ED	PROPONENT / ROADS AUTHORITY / MEFT
BITTERNS DISCHARGE PIPELINE			
➢ The two planned bittern discharge structures that will cross the coastal hummock habitat should be reduced to only one pipeline. ➢ Submerge the bitterns' pipeline in order to allow free movement along the north south axis. ➢ Ensure that the coastal hummocks are accessed only for maintenance of the bittern pipelines. Enforce the dune hummocks as a no-go area. ➢ Vehicle access for maintenance should be a single-lane track directly next to the pipeline. ➢ Keep disturbance (i.e. pipeline and maintenance track) to as narrow a corridor as possible. ➢ Positioning of the discharge point as far down (i.e. nearer to sea) the beach as possible (e.g. through a flexible end section of the pipeline);	Monitor compliance and file report.	GM / ED	MFMR / MEFT
RE-ROUTING OF ROAD			
➢ With respect to the new road, keep disturbance within the designated footprint of the road and verges. ➢ Start rehabilitation of any excavations and road verges as the road construction progresses. ➢ Put effective signage along the section of re-routed coastal road prohibiting vehicle access to the washes and rocky outcrops.	Monitor compliance and file report.	GM / ED	PROPONENT / ROADS AUTHORITY / MEFT
OPERATIONAL PHASE			
SALT MINING (CRYSTALLISER MAINTENANCE & HARVESTING, PROCESSING PLANT & BUILDINGS MAINTENANCE & FUEL STORAGE)			

BIODIVERSITY MANAGEMENT PLAN			
Mitigation / Enhancement Measure	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
Schedule regular checks and implement an effective maintenance regime for all physical structures on site.	Record and file the maintenance actions.	ED	PROPONENT / MEFT / MFMR
BRINE PIPELINE MAINTENANCE			
➢ Schedule frequent checks of the pipeline for assessing the integrity of the pipeline. ➢ Replace weathered sections and joints along the pipeline length. ➢ These actions will lower the risks of spillage and subsequent impact on the floral and faunal biodiversity.	The mining area that is being affected is not a high biodiversity habitat.	ED	PROPONENT / EAP / MEFT
BITTERNS DISCHARGE PIPELINE MAINTENANCE & OPERATION			
➢ Apply for a discharge permit and submit report to DWA on the analysis of samples. ➢ Discharge the bitterns during the spring tide cycles (every 2 weeks) and only at high tide to maximise dilution; ➢ Reporting of any mortalities of intertidal marine life in the vicinity of the bitterns' outlet as a direct consequence of the discharge.	➢ Record bitterns' density and ionic concentrations composition prior to release onto beach. ➢ Record discharge volumes and discharge rates on release of bitterns ➢ Keep all records and findings on file ➢ The effluent discharge permit must be filed	GM / ED	PROPONENT / EAP / MEFT / DWA
PRODUCT TRANSPORT			
Trucks should keep to the speed limits to lower the risk of impacting the jackals or hyena that cross the coastal road.	Satellite tracking of vehicles and reporting to be put on file.	GM / ED	PROPONENT
DECOMMISSIONING PHASE			
SOLAR SALT OPERATIONS (PROCESSING PLANT & ADMINISTRATION INFRASTRUCTURE, BRINE & BITTERNS' PIPELINE)			
Dismantling and removal of the equipment, removal of demolished building rubble and landscaping of the accessory works area and saline pan will be necessary so that the flora and fauna can re-establish in the disturbed areas.	Mine closure plan to be developed and put on file.	PROPONENT	MEFT / MME

Table 6. Potential Health and Safety Impacts of salt mining and processing, brine pipeline and bitterns' pipeline and road re-routing during Construction, Operational and Decommissioning Phases. (Authority refers to the responsible person / party)

HEALTH AND SAFETY MANAGEMENT PLAN (INCLUDES PUBLIC TRAFFIC SAFETY)				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
PLANNING PHASE				
The potential impacts on human health and safety resulting from operations could include occupational accidents and injuries, vehicle accidents, exposure to weather extremes, trips and fall on uneven terrain, adverse health effects from dust generation and emissions, and contact with hazardous materials.	➢ Draw up operational procedure manuals ➢ Provide health and safety awareness training ➢ Establish practical standard housekeeping rules ➢ Inform contractors of the design requirements of the new road re-routing and intersection at the mine entrance.	A register of all incidents must be maintained. This should include measures taken to ensure that incidents do not repeat themselves.	GM / ED	Ministry of Labour / PROPONENT
CONSTRUCTION PHASE				
Increased risk for road accidents with increased vehicle movements.	Use typical road traffic signs warning public of construction vehicles in the area where applicable. This is only necessary where the public road and the access road meet and along the road where the brine pipeline will be constructed. The design of the re-routed road and intersection at the mine's access points needs to meet the mitigation requirements as suggested by the engineers in their specialist traffic safety report.	Report on any non-compliance if the arise.	GM / ED	PROPONENT
OPERATIONAL PHASE				
Road safety for road users.	➢ Maintain vehicles ➢ Obey traffic rules ➢ No over loading ➢ Ensure licenses are valid (vehicles and operators)	Monitoring reports on file Non-compliances reported and on file	GM / ED	Roads Authority / Traffic Police
Movement and presence of vehicles (bulldozers, front-end loaders, trucks) on and around the pan and	➢ Coordinate movement of operational vehicles; ➢ Operational distances to be maintained; ➢ Maintain the integrity of roads;	Operators certificates on file; File any incident reports;	GM / ED	PROPONENT

HEALTH AND SAFETY MANAGEMENT PLAN (INCLUDES PUBLIC TRAFFIC SAFETY)				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
mining site presents risks of accidents due to collisions or unstable substrate. This poses risks to personnel safety and asset security.	➢ Training of personnel.	Schedule of road maintenance on file		
Risk to health and safety of employees	Maintain "good housekeeping". Hazardous substances, compressed gas cylinders and chemical products must be properly labelled and securely stored in locked containers or areas to prevent mixing or water contamination that would result in noxious gases, explosions or other worker hazards. Ensure that all operators and or maintenance crews on-site are familiar with the company's emergency response plan Conduct thorough safety training to personnel about the use of protective clothing, footwear, gloves and belts; safety goggles and shields; dust masks and respirators; the correct handling of materials and the safe use of all equipment. First aid treatment, emergency treatment and medical assistance must be available immediately. Regular inspections must be carried out to inspect and test fire-fighting equipment. Fire-fighting equipment must be readily accessible. Fire prevention considerations include fire doors, fire pumps, and emergency fuel-flow stopping devices. Escape routes must be protected during fire outbreaks. Provide medical assistance where needed.	A register must be maintained of all training provided to staff. A register must be maintained for all safety equipment and medical supplies kept on site. This should include date of purchase and date of service/replacement for items that can expire or deteriorate with age. A register of all incidents must be maintained on a daily basis. This should include measures taken to ensure that incidents do not repeat themselves. Compile all monitoring information in an annual report.	GM / ED	Ministry of Labour / PROPONENT
DECOMISSIONING PHASE				
Abandonment of the area potentially exposes public and wildlife to hazards. When a mine is abandoned the infrastructure and altered landscape can affect the safe access of wildlife and general public if not rehabilitated	➢ All movable assets to be removed off site ➢ All waste to be removed from site ➢ All buildings to be demolished and removed from site (unless permission is granted from MME/MEFT to allow the buildings to be used for next license holder or other land use stakeholder)	At the time of mine closure and abandonment the contractor must rehabilitate the mine site to the state agreed upon at the start of the agreement. Comparisons with the baseline report drafted at the start of the relationship must be made.	PROPONENT / CONTRACTOR / ED	MEFT / MME

HEALTH AND SAFETY MANAGEMENT PLAN (INCLUDES PUBLIC TRAFFIC SAFETY)				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
	➢ All immovable machinery to be dismantled and removed from site ➢ All plant concrete structures to be demolished and removed off site ➢ All earth mounds around crystallisers / pits to be levelled to acceptably safe sloping angles.	➢ Removal of **contractor's** movable assets i.e. plant equipment ➢ Demolishment of **contractor's** fixed immovable assets ➢ Removal of this demolished plant and building rubble by **contractor** ➢ **contractor** to fill in dangerously deep pits or holes in the ground that poses a threat to the public safety ➢ If such pits or holes are too large to fill the **contractor** must barricade or shape the slope of such hazards to prevent any accidents ➢ The **proponent** is to fulfil the same rehabilitation tasks as above for all the accessory works area, including infrastructure, tailings, pits and holes etc. which they created before the Contractor began works within the mining licence area.		

Table 7. Potential Dust Impacts of all activities, during Construction, Operational and Decommissioning Phases. (Authority refers to the responsible person / party)

DUST MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
PLANNING PHASE				
Dust may be generated during the construction and operational phases but this dust is expected to be insignificant compared to the ambient conditions.	It is recommended that regular dust suppression be included during construction of the linear infrastructures. Personnel are to be issued with dust masks for health reasons when needed.	Regular visual inspection. A complaints register must be maintained, in which any complaints from the community must be logged. Complaints must be investigated and, if appropriate, acted upon.	GM / ED	Ministry of Labour / PROPONENT
CONSTRUCTION PHASE				
Dust may be generated during the expansion phase but this dust is expected to be insignificant compared to the ambient conditions.	It is recommended that regular dust suppression be included during expansion, when dust becomes an issue. Personnel are to be issued with dust masks for health reasons when needed.	Regular visual inspection. A complaints register must be maintained, in which any complaints from the community must be logged. Complaints must be investigated and, if appropriate, acted upon. Report on each expansion period	GM / ED	Ministry of Labour / PROPONENT
OPERATIONAL PHASE				
Generation of dust from high traffic volumes on haul road is expected to be negligible.	The C34 is a salt road and well maintained. Very little dust is created from driving on these roads. High vehicle speed increases the amount of dust stirred up from unpaved roads. Lowering the speed of the vehicle can reduce emissions significantly. The trucks will not travel above the speed limit as per the trucks' payload type and the permit stipulations.	Register of complaints on file.	GM / ED	Roads Authority / Traffic Police

DUST MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
DECOMISSIONING PHASE				
Dust may be generated during the decommissioning phase, but this dust is expected to be insignificant compared to the ambient conditions.	It is recommended that regular dust suppression be included during, when dust becomes an issue. Personnel are to be issued with dust masks for health reasons when needed.	Regular visual inspection. A complaints register must be maintained, in which any complaints from the community must be logged. Complaints must be investigated and, if appropriate, acted upon.	GM / ECO	Ministry of Labour / PROPONENT

Table 8. Potential Waste Impacts of from salt mining and processing, brine and bitterns' pipeline and road re-routing during construction, operational and decommissioning phases. (Authority refers to the responsible person / party)

WASTE MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
PLANNING PHASE				
Waste disposal sites must be established prior to the start of the project	Plan weekly removal of waste to Henties Bay refuse dump. Create a Waste Management Plan.	Waste Management Plan on file	PROPONENT	MEFT
Machinery maintenance poses risks of pollution.	Accessory works application drawn up as per plan in the EIA and submitted Locate equipment and buildings appropriately and plan installation of structures to avoid localised pollution (e.g. workshop with oil water separators or sumps for safe removal to hazardous waste sites and bund structures below stationery machinery where necessary).	Accessory works application submitted, and receipt kept on file Plan on file	PROPONENT	MME
As part of the health, security and safety of all personnel on site emergency responses to various scenarios is necessary.	As part of the mine personnel's health, security and safety an Emergency Response Plan (ERP) needs to be created.	The ERP needs to be printed and put on file. Training must be planned, and frequent drills need to be practiced before and during the various phases of the project.	PROPONENT	Ministry of Labour / MME / Local Authorities / MEFT
Sewerage facilities for the site staff and accommodation facility will be necessary at the mine accessory works area.	Sewerage facilities need to be planned for all phases. Depending on allowable designs either French drains or sealed septic tanks can be constructed. Applications need to be made. Plan for more permanent structures to deal with sewerage. Devise a programme for regular removal of waste to Henties Bay sewerage treatment facility if French drains are not allowed on site.	Waste Management Plan on file. Application for effluent discharge submitted to competent authority and receipt on file.	PROPONENT	Henties Bay Municipality / DWA

WASTE MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
CONSTRUCTION PHASE				
Sanitation	Ensure adequate sewage and sanitation management for construction workers. The proponent must provide suitable sanitary arrangements for the expansion personnel. A minimum of 1 toilet will be provided per 15 persons at each working area. The contractor must maintain, keep clean, neat and hygienic all site sanitation facilities.	Monitor compliance and file report	GM / ED	PROPONENT
Solid waste disposal	Manage solid waste disposal.	Monitor compliance and file report	GM / ED	PROPONENT
Hazardous waste disposal	Ensure spillage does not occur.	Hazardous waste certificate from hazardous waste dump in Walvis Bay on file.	GM / ED	PROPONENT
OPERATIONAL PHASE				
Pollution from solid waste	Implement the **Waste Management Plan**, which outlines: ➢ Expected type and amount of waste; ➢ Measures to reduce waste; ➢ Type and expected volume of recyclable waste; ➢ Recycling facilities that will collect/receive waste; ➢ Type of storage for different waste types; ➢ Collection and transport of waste; and ➢ Monitoring procedures to ensure the waste management plan is implemented. The following actions should enable the effective management of waste, preventing pollution within the ML: ➢ Training and awareness program to be implemented; ➢ Ensure that no material used at the site enters the surrounding environment; ➢ Aim to minimise waste through reducing and re-using (e.g. packaging, metal scrap) material;	**Monitoring:** ➢ **Regular** inspection of waste collection and disposal areas. ➢ Check and file waste disposal slips. ➢ Compile all monitoring information in an **annual** report and audit this report against the waste management plan. **Performance Indicators:** ➢ Availability of **Waste Management Plan** ➢ Extent to which this plan is complied with ➢ Presence of litter within the area and surrounding land ➢ Availability of rubbish bins and skips ➢ Total volume of general and hazardous waste storage capacity	GM / ED	PROPONENT

WASTE MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
	➢ Collect recyclables separately and deliver these to suitable facilities or arrange for collection; ➢ Prevent littering by staff at work sites by providing bins or waste bags in sufficient manner; ➢ Provide separate bins for hazardous / polluting materials and mark these clearly; ➢ Store hazardous / polluting materials on impermeable ground until it is disposed of / collected.	➢ Total volume of general and hazardous waste stored on site ➢ Degree to which different waste is separated ➢ Frequency of waste collection		
Servicing of vehicles. Oils and lubricants penetrating soil surface.	All vehicles must be serviced in a designated area inside the maintenance building. Catch trays must be installed.	Monitor maintenance workshop and wash bays for compliance and file reports.	GM / ED	PROPONENT
Oil or diesel spills	In the event of an oil/fuel spill, the spill must be cleaned up immediately and deposited at a registered hazardous waste landfill site in Walvis Bay. Refer to ERP.	Emergency Response Plan on file. Hazardous waste disposal certificate on file.	GM / ED	PROPONENT
Inappropriate disposal of waste within the salt pan, accessory works area and along linear infrastructures.	Designate restricted places for eating in working areas, and provide adequate refuse bins. Implement Waste Management Plan	Monitor compliancy and report on file.	GM / ED	PROPONENT
DECOMMISIONING PHASE				
When all activities come to an end, no waste or litter should be present on site.	All waste to be removed from site	Monitor compliancy and report on file.	GM / ED	PROPONENT

Table 9. Potential Archaeological and Heritage Impacts of Solar Salt Construction and Operation Phases (Authority refers to the responsible person / party)

ARCHAEOLOGICAL / HERITAGE MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
One archaeological or heritage site of low importance was observed by the specialist archaeologist. See the specialist report for details.	The proponent is aware of the provisions of Section 55 (4) of the National Heritage Act setting out the requirement that any sites or remains found while planning and related work should be reported to the authorities as soon as possible. The site located by the archaeologist has been noted and this area of the accessory works area will not be developed on. Chance finds trigger the requirement to stop the activity and contact the authorities and inform them of the find. The significance must be assessed by the authorities. Activities may only commence upon their signal.	The assessment is based on the presence of visible surface indications. The site should be photographed each year and the images filed.	PROPONENT / ED	National Heritage Council / Ministry of Education Arts and Culture

Table 10. General Decommissioning Requirements as Stipulated in the Minerals Act

DECOMMISSIONING MANAGEMENT PLAN				
Nature of Environmental Impact / Aspect / Risk	**Mitigation / Enhancement Measure**	**Monitoring Measure / Control / Tool / Performance Indicator**	**Responsible / Implementing Authority**	**Monitoring / Competent Authority**
Risks associated with abandoning a mine without rehabilitating according to an approved plan: **Minerals Act: Section 54** Any person who contravenes or fails to comply with the provisions of subsection (2) shall be guilty of an offence and on conviction be liable to a fine not exceeding R8 000 or to imprisonment for a period not exceeding 12 months or to both such fine and such imprisonment. **Contractual Agreements** The Contractor's failure to meet the obligations as stipulated in the contractual agreement with regards to rehabilitation will incur penalties to the value of the cost of rehabilitating the mining area to a state agreed upon by the Contractor and Proponent at the start of the contractual agreement.	A mine closure plan must be developed as per the guidelines of the MME. **Minerals Act:** **Section 54** **Abandonment of mining areas** The holder of a mineral licence may abandon the mining area by notice in writing addressed and delivered to the Commissioner who in turn will notify the license holder that the mine has been abandoned as from the date of the cancellation notice. (2) The holder of the mineral licence to which such area relates shall: ➢ demolish any accessory works erected or constructed by such person in such area, except in so far as the owner of the land retains such accessory works on such conditions as may mutually be agreed upon between such owner and person and remove from such land all debris and any other object brought onto such land; ➢ take all such steps as may be necessary to remedy to the reasonable satisfaction of the Minister any damage caused by any mining operations carried on by such holder to the surface of, and the environment on, the land in the area in question. The abandonment of a mining area shall not affect any legal proceedings instituted against such holder or any obligation or liability of such holder in terms of the provisions of the Act.	At the time of mine closure and abandonment the proponent must rehabilitate the mine site to the state agreed upon at the start of the agreement. Comparisons with the baseline report drafted at the start of the relationship must be made. ➢ Removal of movable assets i.e. plant equipment ➢ Demolishment of fixed immovable assets ➢ Removal of this demolished plant and building rubble ➢ Fill or re-slope dangerously deep pits or holes in the ground that poses a threat to the public safety ➢ If such pits or holes are too large to fill, re-slope of barricade such hazards to prevent any accidents ➢ The proponent is to fulfil the same rehabilitation tasks as above for all the accessory works area, including infrastructure, tailings, pits and holes etc. which they created before the contractor began works within the mining area. ➢ It is understood that the abandoned mining area could be started up again by another license holder and solar salt operations are started on the pans provided the brine infiltration process continues as it has until now and for the duration of the current and future mining. In this case no rehabilitation of the crystallizing ground will be required.	PROPONENT	MEFT / MME