

**Prepared for:**



**ENVIRONMENTAL SCOPING REPORT WITH ASSESSMENT  
FOR THE MILE 68 SALT PROJECT**

**November 2020**

**Prepared by:  
Philip Hooks**

Project:	Salt Mining at Mile 68 salt pan, Erongo Region
Project Team:	Philip Hooks (Lead) & Werner Petrick
Report: Version/Date:	Final Report for Submission 04 November 2020
Prepared for:	Gecko Salt (Pty) Ltd
Cite this document as:	<b>Hooks, P.N. &amp; Petrick, W., 2020. Draft Environmental Scoping Report with Assessment for Mining Salt at Mile 68, Erongo Region</b>
Disclaimer	<p>As the lead environmental assessment practitioner (EAP) undertaking this environmental scoping report with assessment I hereby declare my independence from the proponent. There is no conflict of interest with respect to my taking up this project for Gecko Salt (Pty) Ltd.</p> <p>I am aware that there is currently a legal dispute between the proponent and the other mineral licence holder that is developing new crystallisers and accessory works infrastructure at the Mile 68 salt pan.</p> <p>Every attempt has been made to maintain objectivity regarding the salt mining project as presented to me by the proponent.</p>

## EXECUTIVE SUMMARY

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 the surrounding of this pan 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 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.

### ***Public Participation***

Public consultation was thorough and Interested and Affected Parties (I&APs) were well informed about the project. I&APs had an opportunity to ask questions and raise their various concerns. Upon completion of this report and drafting of the environmental management plan (EMP) the Interested and Affected Parties have had an opportunity to provide additional input during the public review period.

### ***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 outcomes of the mitigated impact assessments are tabulated below. A summary statement for each impact assessment is also provided below. This report is thus the product of the shortened EIA process and is referred to as an Environmental Scoping Report with Assessment (ESR).

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

1. Flora Assessment Study (by Mr. Philip Hooks)
2. Fauna Assessment Study (by Mrs. Henriette Potgieter)
3. Marine Ecology Assessment Study (by Dr. Andrea Pulfrich)
4. Archaeology Assessment Study (Mr. John Kinahan)
5. Traffic Assessment Study (Mr. Gert Maritz of Lithon Engineering)

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 have been 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 **APPENDIX E**. Summaries from the specialist work and assessment are given in the following.

### ***Biodiversity Studies***

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.

### ***Flora***

The assessment also included the existing disturbed areas within the planned mining licence area, along the new road route and within the road reserve of the coastal road along which the brine pipeline extends. These disturbed areas moderated the severity, consequence and significance of the impact even without the consideration of mitigating measures that might decrease the significance.

The impacts on the 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.

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
<b>Impact</b>	<b>Mining activities may affect the ecology and biodiversity of flora directly or through habitat alteration within the planned mining area.</b>					
<b>Mitigated</b>	L	H	L	M	L	L
<b>Impact</b>	<b>Brine pipeline construction, operation and decommissioning may affect the ecology or biodiversity of flora directly or through habitat alteration along the planned route.</b>					
<b>Mitigated</b>	L	H	L	M	L	L
<b>Impact</b>	<b>Construction and operation of the new section of coastal road decommissioning may affect the ecology or biodiversity of flora directly or through habitat alteration along the planned route.</b>					
<b>Mitigated</b>	L	L	L	L	L	L

The recommended mitigation measures have been incorporated into the Draft EMP. The essential mitigations are listed here.

- The spatial extent of the crystallisers should be kept to within the saline pan area as planned.
- The two planned bittern discharge structures that will cross the coastal hummock habitat should be reduced to one crossing pipeline only.
- Submerge the bitterns pipeline in order to allow free movement along the north south axis.
- The accessory works area for the processing plant, product stockpiling, workshops 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.
- The brine pipeline from Cape Cross should be built on the edge of the road reserve as this land has already been disturbed.
- The pipeline can be placed under the ground where washes intersect the pipeline route.
- Placement of the pipeline on the eastern edge of the road reserve acts as a barrier to off-road driving.

- Covering the pipeline along its entire length with gypcrete or desert gravel will not only hide the presence of the pipeline, it will potentially provide a small barrier for trapping seeds which could potentially germinate. A negative aspect of creating a mound is that vehicle owners may be more easily tempted to breach the mound and thereby possibly damage the pipeline. An exposed pipeline could be a deterrent from entering the Dorob National Park indiscriminately and help to enforce the use of designated roads or tracks. Ultimately, the requirements of the Roads authority and the Dorob National Park management team needs must be met.

**Fauna**

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. Following the precautionary principle, it is suggested that brine ponds be identified, and samples taken from them to identify any macro invertebrate fauna that might occur. Regular monitoring of these brine ponds should take place during the mining operations.

The gravel plains are sensitive but of low concern, provided that activity remains 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 outcrop occurs 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.

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
<b>Impact</b>	<b>Direct and indirect loss of habitats and organisms; disturbance of ecological processes</b>					
<b>Mitigated</b>	L	H	L	M	L	L
<b>Impact</b>	<b>Brine pipeline as a barrier to the normal movement of animals</b>					
<b>Mitigated</b>	L	L	M	L	L	L
<b>Impact</b>	<b>Bitterns discharge pipeline - direct and indirect loss of animals, as well as destruction and/or disturbance of part of a highly sensitive habitat</b>					
<b>Mitigated</b>	L	M	L	L	L	L

Impact	New road route - direct and indirect loss of animals, as well as destruction and/or disturbance of habitat					
Mitigated	L	M	L	L	L	L

It should be noticed that the outcome of the significance of the impacts is low but conditional on applying specific mitigation measures. These are incorporated in the Draft EMP. A few essential mitigation measures are mentioned here below.

- Limit the footprint of the crystallisers and accessory works to the currently planned size and location (i.e. saline pan and gravel plain west of new road diversion, allow only one access point through coastal hummocks and minimise the routes through rock outcrop areas to only that which is absolutely 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.
- Ensure that the coastal hummocks are accessed only for maintenance of the bittern pipelines. Enforce the dune hummocks as a no-go area.
- Provide ablution facilities and train staff and contractor staff about indiscriminate defecating.
- With respect to the bitterns' pipeline limit vehicle access for maintenance to a single-lane track directly next to the pipeline.
- Keep disturbance (i.e. pipeline and maintenance track) to as narrow a corridor as possible.
- Lay the pipes below the surface of the hummock dunes.
- With respect to the brine pipeline from Cape Cross construct earth mounds at intervals along the entire length of the pipeline. It should be built of such materials and in such a way as to be resistant to wind erosion. The gradient and surface should be such that animals of all sizes and propulsion methods are able to utilise it. Alternatively, if the pipeline is to lie above ground it should be elevated slightly 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.
- The pipeline should be constructed within the road reserve and no pristine habitat should be affected during the construction phase.
- With respect to the new road, during construction, keep disturbance within the designated footprint of the road and verges.
- After construction, start rehabilitation as soon as the disturbance has ceased.

- Put effective barriers along new road and C34 to prevent vehicle access to the washes and rocky outcrops, while not affecting the movement patterns of hyenas, jackals and springbok.
- 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.

**Marine Ecology**

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. These specific areas include:

- The natural intertidal and shallow subtidal beach environments adjacent to the discharge site; and
- Recreational surf-angling.

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
<b>Impact</b>	<b>Impacts of elevated salinity on the physiological functioning of marine organisms</b>					
<b>Mitigated</b>	L	L	L	L	L	L
<b>Impact</b>	<b>Impacts of elevated temperature on the physiological functioning of marine organisms</b>					
<b>Mitigated</b>	L	L	L	L	L	L
<b>Impact</b>	<b>Impacts of ionic imbalances in the bitterns on the physiological functioning of marine organisms</b>					
<b>Mitigated</b>	L	L	L	L	L	L
<b>Impact</b>	<b>Impacts of nutrient enrichment in the surf zone following release of bitterns</b>					
<b>Mitigated</b>	L	L	L	L	L	L

Even though all potential marine ecology impacts resulting from the bitterns’ disposal were assessed to be of low significance mitigation measures and management actions have been proposed and are applicable to all the impacts. These have been incorporated into the Draft EMP. A few essential ones are mentioned here below.



- Discharging through a single bitterns’ outlet only (i.e. either the northern OR the southern option, but not both) thereby restricting the impact footprint;
- Monitoring of bitterns’ density and ionic concentrations composition prior to release onto beach;
- Monitoring of discharge volumes and discharge rates on release of bitterns;
- 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);
- Discharge of bitterns at half tide or higher during the ebbing tide only to maximise the effects of dilution;
- Reporting of any mortalities of marine life in the vicinity of the bitterns outlet as a direct consequence of the discharge.

**Archaeology**

A systematic foot survey of the proposed accessory works area revealed a single archaeological site close to the north-western margin of the project area in low-lying ground on the leeward side of a weathered dolerite dyke.

The site consisted of seven dispersed stone features probably representing windbreaks and storage facilities covering an area of approximately 300m<sup>2</sup>. There were no artefacts or other archaeological remains visible on the surface. The stone features are similar to those found in the vicinity of Cape Cross and Wlotzkasbaken.

Although the stone features appear to be undisturbed, the site lies on the edge of a large excavated pit with associated spoil heaps. The site is also crossed by a disused vehicle track.

It has been recommended that if the site does not lie unavoidably in the path of the proposed activities it should be demarcated and left undisturbed. The impact assessment resulted in a low significance subsequent to this mitigation. In addition to this the specialist stated that although undisturbed, the site that was discovered is considered to have negligible research value.

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
<b>The accessory works may cause physical disturbance or destruction of an archaeological site</b>						
Mitigated	L	L	L	L	L	L

**Socio-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.

Many positive impacts can be enhanced with careful management, and mitigation measures have been proposed which will reduce negative impacts.

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.

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.

Overall, salt mining and purification works 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 in developing on its own mining licence 210. The Mile 68 project will at the very least supplement the ML210 salt production but could cumulatively add to the overall salt production.

The following table summarises the outcomes of the impact assessment for the combined Cape Cross and Mile 68 salt projects. The assessment is with mitigation measures implemented. The positive outcomes are significant.

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
<b>Impact</b>	<b>Employment Creation and Skills Development</b>					
<b>Mitigated</b>	H+	H	H	H	H	H++
<b>Impact</b>	<b>Economic Impacts at a local, regional and national level</b>					
<b>Mitigated</b>	H+	H	H	H	H	H++
<b>Impact</b>	<b>Increased demand for improved housing and schools</b>					

<b>Mitigated</b>	<b>M+</b>	<b>M</b>	<b>M</b>	<b>M+</b>	<b>M</b>	<b>M+</b>
<b>Impact</b>	<b>Competing land uses – conservation, eco-tourism and mining</b>					
<b>Mitigated</b>	<b>L</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>

### ***Road Safety or Traffic***

The main road at Mile 68 is routed between the operations of the accessory works area and the salt pan crystallisers. Salt works vehicular movements across the existing main road increases the risk of 3rd party accidents. By re-routing this section of the main road, around the crystalliser ponds and the proposed processing area, this risk is reduced substantially though the significance is still medium. However, this is an improvement and so the re-routing should be seriously considered as the best mitigation. In addition to the horizontal alignment improvements the introduction of a wider intersection will reduce the impact further to a low significant outcome.

Due to the road being a salt road there are no road markings on the road. A fact which poses a risk to driver safety. Drivers are therefore reliant on Road Signs which currently consist of 'no road marking' signs, 'no-overtaking' signs, general warning signs and 'slippery when wet' signage. A mitigation measure is to add road signage to the new proposed deviation such as warning signs at the new proposed intersections leading onto the main road as well as speed limit signs and delineators next to the road shoulders to make drivers more alert of the imminent dangers.

Maintenance of the salt road was also considered in the impact assessment. The maintenance requirements of the south-bound lane with maximum axle loads will be an order of magnitude higher than that of the north-bound lane carrying empty trucks. The delays to traffic due to watering and grading can lead to frustration and risk taking by both truck drivers and the public. The maintenance of the new proposed deviation is not the responsibility of the proponent, but the responsibility of the Namibia Roads Authority as the owner of the road.

The frequency of maintenance on the road is not known by the author, but there is a maintenance plan in place by the Namibia Roads Authority in maintaining the Salt Road on a frequent basis.

Mitigation measures would be to take the maintenance operations into account in the planning of the transport operations of the salt mine in order not to have excess traffic of the salt mine piling up on the road.

Based on the Safety Audit conducted, the major concern is the fact that the proposed deviation will also be a salt road and that no road markings will be available. The usage of more informative traffic signs and reflective edge delineators will mitigate the imminent dangers. It is therefore recommended that:

- Warnings of salt roads having no road markings must be provided at both ends of the deviation and at the proposed T-junction.

- The warning of slippery when wet should be combined with the previous warning of salt road no road markings, either as a separate warning sign with 500m intervals, or a part of a high visibility combination sign.
- The new proposed junction should be widened to have deceleration and acceleration lanes to allow three lanes of traffic to be accommodated.
- Edge markers (delineators) in the form of white poles with yellow reflective strips must be maintained at standard spacing and at features (e.g. corners and vertical changes).
- The maintenance operations of a salt road must be taken into account in the planning of the transport operations of the salt mine.

The following table provides the outcome of the impact assessment after mitigation measures are implemented.

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
<b>Impact</b>	<b>Horizontal alignment: Salt works vehicular movement crossing the existing road</b>					
Mitigated	L	H	L	M	L	L
<b>Impact</b>	<b>Lack of road markings and road signs poses a risk to safety</b>					
Mitigated	L	H	L	M	L	L
<b>Impact</b>	<b>Maintenance of salt road causes frustration and risk</b>					
Mitigated	L	L	L	L	L	L

**Management Plan**

All of the mitigation measures listed by the specialists have been considered for inclusion in the Draft Environmental Management Plan (EMP). Where a mitigation measure was deemed unrealistic and not necessary, justification for the decision is given. The Draft EMP also provides the monitoring requirements as well as the required rehabilitation activities.

Due to the long-term sustainability of salt production it is unlikely that the mine would ever need to close. Fluctuations in market demand may affect the mine from time to time. Should the mining project have to be closed permanently then rehabilitation of the mining area would need to be undertaken. A mine closure plan should take into consideration the recommended rehabilitation measures highlighted in EMP. Some rehabilitation should take place at the end of construction phase where activities resulted in disturbances along the pipeline route, road re-routing section of the road and along the bitterns’ pipeline route.

**Concluding Remarks**

The EAP deems the project to be acceptable considering the input of the specialists and the low significance of the impacts provided the necessary mitigation measures and ongoing rehabilitation measures are all implemented with monitoring.

Another key element for the successful implementation of the project is the resolution of any land use dispute that exists between the licence holders Gecko Salt (Pty) Ltd and Gossow Holdings (Pty) Ltd.

## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>GLOSSARY OF TERMS &amp; ABBREVIATIONS.....</b>	<b>18</b>
<b>1. INTRODUCTION .....</b>	<b>20</b>
<b>2. ADMINISTRATIVE AND LEGAL FRAMEWORK.....</b>	<b>22</b>
<b>3. EIA SCOPING PROCESS .....</b>	<b>24</b>
3.1 Initial Project Screening.....	24
3.2 Project Alternatives .....	24
3.3 Public Participation.....	25
3.3.1 Site Notices .....	25
3.3.2 Press Notices.....	25
3.3.3 Stakeholder Notification & Background Information Document.....	25
3.3.4 Public Meetings and Focus Group Meeting .....	26
3.4 Interested & Affected Parties Comments and Responses .....	26
3.5 Project Screening Decision .....	27
3.6 Impact Assessment Terms of Reference .....	33
3.7 Public Review.....	34
3.8 Final Report .....	34
<b>4. PROJECT DESCRIPTION.....</b>	<b>36</b>
4.1 Construction Phase Activities .....	37
4.2 Operational Phase Activities.....	39
4.2.1 Operational Times.....	39
4.2.2 Brine Source .....	39
4.2.3 Salt Production.....	39
4.2.4 Bitterns Discharge .....	40
4.2.5 Salt Harvesting .....	41
4.2.6 Salt Processing .....	41
4.2.7 Energy Source .....	41
4.2.8 Water Source .....	41
4.2.9 Salt Haulage .....	41
4.3 Decommissioning Phase Activities .....	41
<b>5. DESCRIPTION OF THE RECEIVING ENVIRONMENT .....</b>	<b>42</b>
5.1 LAND USE, MINING LEGACY & CURRENT DISTURBANCE FOOTPRINT.....	42
5.1.1 Land use .....	42
5.1.2 Mining Legacy & Current Disturbance Footprint .....	42
5.2 CLIMATE.....	48
5.3 GEOLOGY & GEOMORPHOLOGY .....	48
5.3.1 Geology of the area.....	49
5.3.2 Geomorphology of the salt pan (surface water and ground water) .....	49
5.3.3 Terrain.....	49
5.4 FLORA .....	49
5.4.1 Lichens .....	50
5.4.2 Floral habitats .....	50
5.5 FAUNA .....	53
5.5.1 Faunal habitats.....	53
5.5.2 Faunal taxa .....	56
5.6 MARINE ECOLOGY .....	58
5.6.1 Sandy Substrate Habitats and Biota.....	58
5.6.2 Rocky habitats and biota.....	59
5.6.3 Pelagic communities .....	60
5.6.4 Potentially threatened marine habitats .....	62
5.7 KEY CONSERVATION AREAS.....	62
5.8 ARCHAEOLOGY .....	67
5.9 ECONOMIC & SOCIAL ENVIRONMENT .....	68
5.9.1 The Cape Cross Area .....	68

5.9.2	Henties Bay .....	69
5.9.2.1	Population Dynamics.....	69
5.9.3	The Economics of Salt .....	72
5.10	TRAFFIC SAFETY .....	73
5.10.1	Safety Concerns on Salt Roads .....	73
5.10.2	Cross Section: Main Road C34/D2301 at Mile 68.....	73
5.10.3	Horizontal and Vertical Alignment .....	73
5.10.4	Existing T-junction .....	73
5.10.5	Transport operations variances .....	74
<b>6.</b>	<b>IMPACT ASSESSMENT .....</b>	<b>75</b>
6.1	IMPACT ASSESSMENT: FLORA .....	77
6.2	IMPACT ASSESSMENT: FAUNA .....	86
6.3	IMPACT ASSESSMENT: MARINE ECOLOGY .....	94
6.3.1	The marine impact assessments .....	94
6.3.2	Mitigation Measures .....	101
6.3.3	General recommendations from the marine assessment .....	102
6.3.4	Environmental Acceptability and Impact Statement .....	102
6.4	IMPACT ASSESSMENT: ARCHAEOLOGY .....	103
6.5	IMPACT ASSESSMENT: SOCIO-ECONOMIC.....	105
6.6	IMPACT ASSESSMENT: ROAD SAFETY.....	117
<b>7.</b>	<b>ENVIRONMENTAL MANAGEMENT PLAN.....</b>	<b>125</b>
<b>8.</b>	<b>CONCLUSION .....</b>	<b>127</b>
<b>9.</b>	<b>REFERENCES .....</b>	<b>129</b>
<b>10.</b>	<b>APPENDIX A.....</b>	<b>130</b>
<b>12.</b>	<b>APPENDIX C.....</b>	<b>202</b>
<b>13.</b>	<b>APPENDIX D .....</b>	<b>208</b>
<b>14.</b>	<b>APPENDIX E .....</b>	<b>224</b>
<b>15.</b>	<b>APPENDIX F.....</b>	<b>225</b>

### List of Tables

Table 1. Legal requirements and international agreements .....	22
Table 2. The main points raised by I&APs at the public meetings and focus group meetings. .	26
Table 3. Screening Process for the Terms of Reference for the Impact Assessments .....	29
Table 4. Conservation status of bird species .....	57
Table 5. Impact assessment methodology adapted from the Hacking Method .....	75
Table 6. Impact assessment of mining activities on floral ecology, biodiversity and habitat alteration within the planned mining area. ....	77
Table 7. Impact assessment of the construction and operation of the brine pipeline from ML210 to the planned crystallisers at Mile 68. ....	80
Table 8. Impact assessment of the construction and operation of the planned new section of coastal road around the new Mining Licence area at Mile 68. ....	83
Table 9. Impact assessment of mining activities on habitats, animals and ecology .....	86
Table 10. Impact assessment of barrier effect of brine pipeline .....	88
Table 11. Impact assessment of bittern pipeline on habitats and organisms .....	90
Table 12. Impact assessment of new road on habitat and organisms .....	92
Table 13. Impact assessment of increased salinity .....	94
Table 14. Impact assessment of elevated temperature .....	96
Table 15. Impact assessment of ionic imbalance .....	98
Table 16. Impact assessment of nutrient enrichment .....	100
Table 17. Impact assessment on an archaeological site .....	103
Table 18. Impact Assessment of Employment Creation and Skills Development.....	105
Table 19. Impact Assessment of Economic Impacts at a local, regional and national level	107
Table 20. Impact Assessment of increased demand for improved housing and schools .....	110
Table 21. Impact Assessment – conservation, eco-tourism and mining.....	113
Table 22. Impact assessment of vehicles crossing the road.....	117
Table 23. Impact assessment of lack of road markings.....	121
Table 24. Impact assessment of road maintenance .....	123



**Table of Figures**

Figure 1. Location of the proposed Mile 68 Salt mining project in Namibia north of Henties Bay, and project activities and infrastructure layout ..... 21

Figure 2. Layout of the project infrastructure and activities (Satellite imagery from before 2015) ..... 37

Figure 3. New road diversion around the Mile 68 saltpan (Satellite imagery from 2018) ..... 38

Figure 4. Brine pipeline route from Cape Cross salt pan to Mile 68 salt pan with the envisaged mining licence area shown in purple ..... 40

Figure 5. Historical and more recent salt mining activity on the Mile 68 salt pan (Satellite imagery 11.05.2013) ..... 43

Figure 6. View across the Mile 68 saline pan from the beach and towards the old Fisherman’s Inn (photograph taken in 2015) ..... 44

Figure 7. Digitised tracks and secondary roads across the desert and saline pan within and outside the planned mining area. .... 45

Figure 8. Aerial Imagery from 2010 of the Mile 68 Saline Pan with ML82 D, E, & F boundaries in black as per Ministry of Mines & Energy records. .... 46

Figure 9. Aerial image from July 2018 of salt mine workings on the Mile 68 saline pan. .... 47

Figure 10. Mapped habitats within the planned mining area (purple boundary)..... 51

Figure 11. The project area (red rectangle (not to scale)) in relation to the Dorob National Park and nearby strict nature reserves (Orange)..... 64

Figure 12. Map of protected areas that exclude prospecting and mining activities ..... 65

Figure 13. The project area (red rectangle (not to scale)) in relation to Ecologically or Biologically Significant Areas (EBSAs) and coastal seal and seabird colonies..... 66

Figure 14. The position of Site 371 in relation to the boundaries of the proposed accessory works area. .... 68

Figure 15. The new proposed re-routing of the coastal road around the pan instead of through it. .... 119

Figure 16. Typical widening at intersection to accommodate traffic for safety reasons..... 120

### Glossary of Terms & Abbreviations

<b>BID</b>	Background Information Document
<b>CITES</b>	Convention on International Trade in Endangered Species
<b>CMC</b>	Coastal Management Committee
<b>CMS</b>	Convention on Migratory Species
<b>Competent Authority</b>	A body or person empowered under the local authorities act or Environmental Management Act to enforce the rule of law.
<b>EBSA</b>	Ecologically or Biologically Significant Areas
<b>Environment</b>	As defined in the Environmental Assessment Policy and Environmental Management Act - "land, water and air; all organic and inorganic matter and living organisms as well as biological diversity; the interacting natural systems that include components referred to in sub-paragraphs, the human environment insofar as it represents archaeological, aesthetic, cultural, historic, economic, palaeontological or social values".
<b>Environmental Impact Assessment (EIA)</b>	Process of assessment of the effects of a development on the environment.
<b>Environmental Management Plan (EMP)</b>	A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
<b>Environmental Scoping Report with Assessment (ESR)</b>	A shortened form of EIA where during the scoping phase and before or after the public consultation, a screening process determines which aspects of the environment need to be studied by specialists and which aspects need to undergo assessment. This process removes the need to have the scoping report and terms of reference for an EIA submitted to MET for approval. The ESR and Draft EMP can then be submitted to the public for review and thereafter submitted to MET as an application for environmental clearance.
<b>IBA</b>	Important Bird Areas
<b>IUSDF</b>	Integrated Urban Spatial Development Framework
<b>Interested and Affected Party (IAP)</b>	Any person, group of persons or organisation interested in, or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.
<b>IUCN</b>	International Union for Conservation of Nature
<b>MEFT</b>	Ministry of Environment, Forestry & Tourism

<b>Mitigate</b>	The implementation of practical measures to reduce adverse impacts.
<b>MME</b>	Ministry of Mines & Energy
<b>Proponent (Applicant)</b>	Any person who has submitted or intends to submit an application for an authorisation, as legislated by the Environmental Management Act no. 7 of 2007, to undertake an activity or activities identified as a listed activity or listed activities; or in any other notice published by the Minister or Ministry of Environment & Tourism.
<b>Scoping Process</b>	Process of identifying: issues that will be relevant for consideration of the application; the potential environmental impacts of the proposed activity; and alternatives to the proposed activity that are feasible and reasonable.
<b>Stakeholder Engagement</b>	The process of engagement between stakeholders (the proponent, authorities and IAPs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term “public participation”.
<b>Stakeholders</b>	A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (I&APs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.
<b>WBSR</b>	Walvis Bay Salt Refiners

## 1. INTRODUCTION

Gecko Salt (Pty) Ltd (hereafter referred to as Gecko) is a wholly Namibian-owned private company, which was established in 2008 by Mr. Kobus Smit and a number of other Namibian partners. The focus of Gecko Salt is in the industrial mineral sector and specifically the development of salt mining projects in Namibia. The main motivation for the Mile 68 salt mining project is to achieve the necessary economy of scale for the greater Cape Cross salt production area.

Gecko holds Exclusive Prospecting Licence (EPL) number 4426, situated along the coast, approximately 20 kilometres north of Henties Bay, at Mile 68. Gecko plans to produce salt, an industrial mineral, from salt crystallisers to be constructed within a salt pan at this location. Another company, Gossow Holdings, claims the rights to mine within the same salt pan. **Figure 1** renders a map of the project location and proposed salt pan development, neighbouring mining licences (i.e. Mining Licences 82D,E&F), the salt processing area, brine pipeline from Cape Cross salt pan and a new road development envisaged for the project.

Gecko has commenced with an Environmental Impact Assessment (EIA) process based on the requirements of the Environmental Management Act (Act. No. 7 of 2007) and associated EIA regulations Government Notice (GN) No. 29 and 30. An Environmental Clearance Certificate (ECC) for the construction and operation of the proposed mining and processing activities is required and thus an EIA application with associated support documents need to be developed for submission to the Ministry of Mines and Energy (MME), as the Competent Authority. MME will review the application, including the relevant reports and submit their comments to the Ministry of Environment Forestry and Tourism (MEFT) for the review and decision. A mining licence (ML) application lodged with MME will follow this EIA process. Section 3 describes the EIA process that has been followed for this project. Gecko appointed Philip Hooks, an independent Environmental Assessment Practitioner (EAP), to undertake the assessment and compile this Environmental Scoping Report with Assessment (ESR) and Environmental Management Plan (EMP) in support of the application for environmental clearance. The curriculum vita of the EAP is provided in **APPENDIX A**.

Gecko intends to develop a new solar salt crystallization facility with salt washing plant and accessory works at the Mile 68 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.

The planned project is located along the northern-central Namibian coast within the Dorob National Park some 25km north of Henties Bay. **Figure 1** renders a satellite image of the project's location.

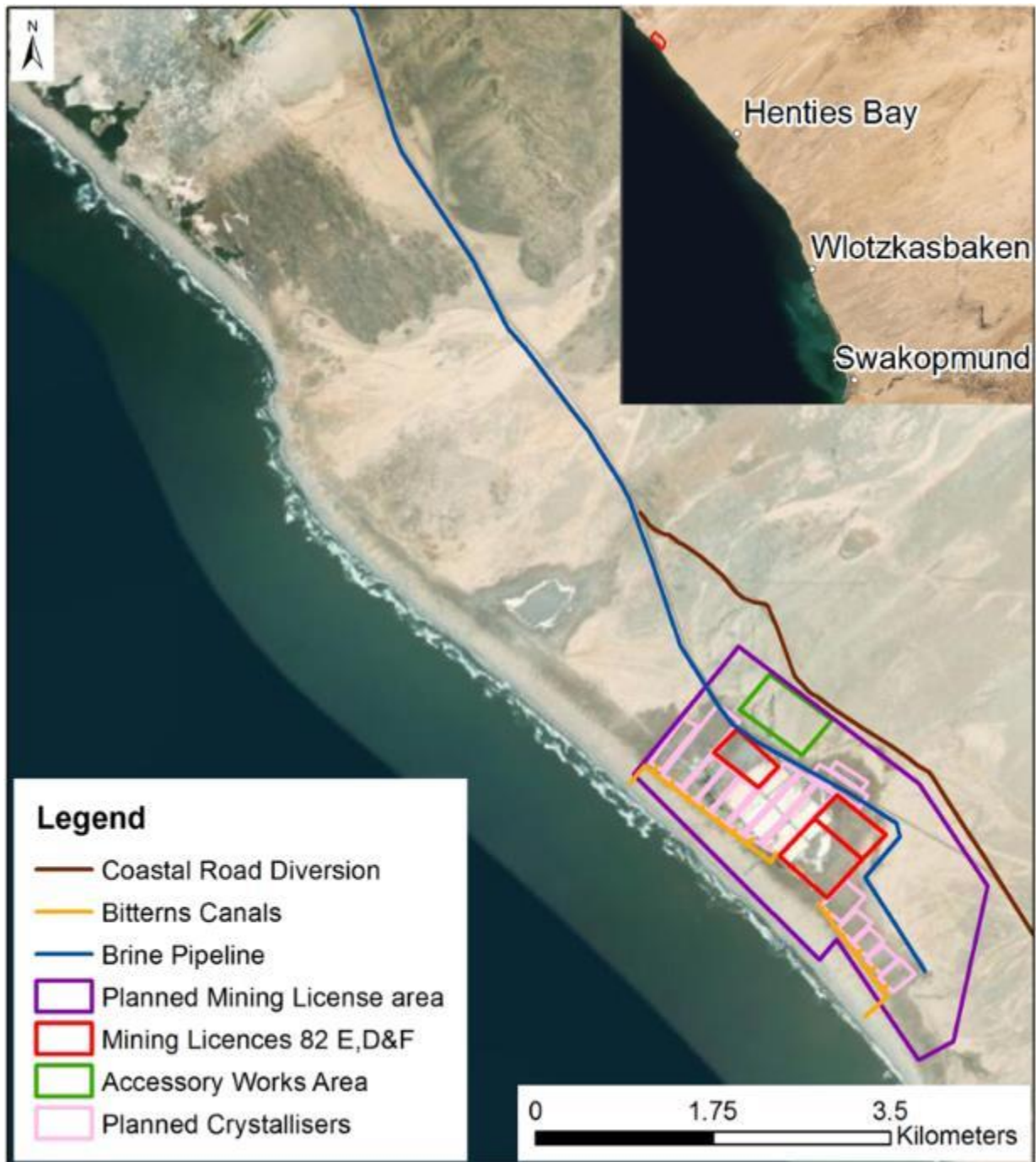


Figure 1. Location of the proposed Mile 68 Salt mining project in Namibia north of Henties Bay, and project activities and infrastructure layout

## 2. ADMINISTRATIVE AND LEGAL FRAMEWORK

The only site-specific law and regulations which are pertinent to the project are pertaining to the Dorob National Park, which was gazetted as a national park under the Nature Conservation Ordinance No. 4 of 1975 on 1 December 2010.

In agreement with the national legal framework, there are several acts, policies, ordinances and regulations that govern the statutory decision-making process. In addition, Namibia is a signatory to several international conventions and agreements that bind Namibia to sustainable development and the conservation of biodiversity. The most relevant documents are listed in the following **Table 1**.

**Table 1. Legal requirements and international agreements**

LAW/ORDINANCE	APPLICABILITY
Atmospheric Pollution Prevention Ordinance No. 11 of 1976	Pollution prevention
Draft Dorob National Park Tourism Plan (2015)	Delineation of environmentally sensitive areas (See Section 5.7)
EIA Policy (1995)	Environmental Assessment
Environmental Assessment Regulations (GN 30 of 2012)	Regulates the environmental assessment process
Environmental Management Act, 2007	Establishes principles for environmental management
	Promotes integrated environmental management
Forestry Act 12 of 2001	Plants
Hazardous Substances Ordinance 14 of 1974, and amendments	Pollution prevention
Listed activities (GN. No. 29 of 2012)	Lists activities that require Environmental Clearance before implementation
Management and Development Plan for the for the Central Coast Park of the Namib-Skeleton Coast National Park (2009)	Land use and compatibility of mining, tourism and conservation
Marine Resources Act, 2000	Conservation of marine ecosystem
	No disturbance of seabirds and seals
	Dumping and discharge of waste
	Disturbance of marine fauna
Declaration of protected areas and steps to be taken before declaration	
Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1994)	Guidance for undertaking environmental impact assessments
National Heritage Act, 2004	Protection of archaeological sites and remains
National Policy on Prospecting and Mining in Protected Areas, 2018	Excludes certain zones from prospecting and mining – See section 5.7. The Dorob National Park is not included in the exclusion list. The policy provides a map showing those parks that do not allow any mining or prospecting.
Nature Conservation Amendment Act 5 (1996)	Conservation

<b>LAW/ORDINANCE</b>	<b>APPLICABILITY</b>
Nature Conservation General Amendment Act 1990	Conservation
Nature Conservation Ordinance 4 of 1975 with amendments and special regulations	Declaration of protected areas, as well as the protection status of individual species
Parks and Wildlife Management Bill of 2001	Replaces the existing Nature Conservation Ordinance No. 4 of 1975, with amendments
Pollution Control and Waste Management Bill (2003) Draft	Protection for particular species, resources or components of the environment
Seashore Ordinance 37 of 1958	Removal of living and non-living resources from seashore or seabed and depositing of rubbish within 3 nautical Miles of the shore
Strategic Environmental Assessment (SEA) for the Erongo and Kunene coastal regions (2012)	Recommendations and baseline descriptions of the environment
The constitution of Namibia (1990) Article 95 (1)	Preservation of Namibia's ecosystems, essential ecological process and biological diversity
	Sustainable use of natural resources
Water Resources Management Act, 2013	No discharge of effluent without permit
	Standards of effluent quality
Labour Act No. 11 of 2007	Employer and employee relations; occupational health of employees.
<b>CONVENTION/AGREEMENT</b>	<b>APPLICABILITY</b>
Benguela Current Convention	A coordinated regional approach to the long-term conservation and sustainable use of the Benguela Current Large Marine Ecosystem
Convention on International Trade in Endangered Species (CITES)	Regulates the trade in endangered species
International Union for the Conservation of Nature (IUCN)	Categorises the extinction threat for any given taxon
Key Biodiversity Areas	Cape Cross lagoon is listed as an Important Bird Area, defined as a site of global importance for bird conservation
United Nations Convention of Biological Diversity	Declaration of protected habitats as national parks and reserves
	Protection of various species
United Nations Law of the Sea Convention of 1982	Marine pollution from seabed activities and land-based sources

### 3. EIA Scoping Process

This section outlines the process from the project registration through to compilation of the ESR and Draft EMP. The following sub-headings follow almost exactly the chronological stages of this EIA project.

#### 3.1 Initial Project Screening

The proponent wants to start mining salt at the Mile 68 salt pan. For application for a Mining Licence at the MME an environmental clearance is required. Gecko approached me, the EAP and requested a proposal to undertake the necessary EIA in order to apply for an environmental clearance for the envisaged project. The proposal submitted to the proponent considered the activities that were listed in the proponent's scope of works. An EIA was registered for these activities with MET on 20<sup>th</sup> February 2019. A copy of the proof of project registration can be found in **APPENDIX B**.

Drafting of the proposal required a first round of screening, which considered existing knowledge about the area and its bio-physical environmental, the project scope of works and any gaps in the information. The EAP considered it imperative at this point to include specialist studies for the fauna and flora, and to include a traffic safety assessment by engineers for re-routing of the road around the salt pan at Mile-68.

#### 3.2 Project Alternatives

The alternatives have been formulated through discussion with the proponent and through the public consultation process. Project alternatives are divided into two categories.

Firstly, the 'no go' based on environmental grounds would have been considered if the impact assessment resulted in significant impacts regardless of any mitigations.

During the public consultation the neighbouring ML holder, Gossow Holdings (Pty) Ltd strongly recommended that Gecko consider using Cape Cross salt pan only. The proponent did not consider this recommendation and remains steadfast in its commitment to go ahead as planned if environmental clearance is granted.

Secondly, should the planned project go ahead at Mile 68, the following project alternatives were to be weighed up during the assessment. These are listed as follows:

- Placement of the brine pipeline on east side of the road or the west side.
- The covering or submerging of the brine pipeline as opposed to leaving the pipeline on the surface.
- The necessity of one as opposed to two bitterns discharge pipelines.
- Three options for the route of the coastal salt road. These include leaving the road where it is or using one of two re-routing options to the east of the current coastal road.
- The extent of the crystallisers and accessory works area in terms of the neighbouring ML holders' activities.



### 3.3 Public Participation

The Environmental Management Act and the Environmental Assessment Regulations (MET, 2012) require that the proponent provide the public with details of the project during a public participation process. Consultation with the public forms an integral component of an Environmental Impact Assessment (EIA) and enables Interested and Affected Parties (IAPs) e.g. neighbouring landowners, local authorities, environmental groups, civic associations and communities, to comment on the potential environmental impacts associated with the proposed operations and to identify additional issues which they feel should be addressed in the scoping (including assessment) phase. Consultation was initiated and facilitated through notification letters, site and press notices, two public meetings and a focus group meeting. **APPENDIX B** lists the actual IAPs that were engaged. This IAPs list was developed from analysing the location of the project and the stakeholders that have authority over the land and linear infrastructure. The contact details for these IAPs was ascertained from the Henties Bay Municipality, Coastal Management Committee representative and the internet.

#### 3.3.1 Site Notices

Site notices for this particular project and ECC application were published conspicuously to inform the public about the proposed project, the EIA process being followed and the opportunity to register as an I&AP. Site notices were placed at:

- At the Spar in Henties Bay
- At the proposed salt mining project site
- At the Henties Bay municipal offices

These notices were still present at the time of the public meeting. Photographs of the site notices can be found in **APPENDIX B**.

#### 3.3.2 Press Notices

Press notices were placed in two widely distributed newspapers for two consecutive weeks providing details of the project whilst giving the public an opportunity to register as I&APs. Notices appeared in the Namib Times on the 8<sup>th</sup> and 15<sup>th</sup> March 2019 and in The Namibian newspaper on the 8<sup>th</sup> and 15<sup>th</sup> March 2019. Scanned copies of the newspaper notices are given in **APPENDIX B**.

#### 3.3.3 Stakeholder Notification & Background Information Document

A Background Information Document (BID) was emailed to the various I&APs throughout the initial public participation process. Local government ministry officials received the BID by email on the 4<sup>th</sup> April 2019, namely, the members of the Coastal Management Committee (CMC), the Erongo Region Governor's office, Erongo Region Government offices, the Chief warden of the Dorob National Park, the officials from Henties Bay Municipality, the Roads Authority and the Swakopmund Fisheries Offices. Proof of email correspondence can be found in **APPENDIX B**. These offices, officials and institutions were also automatically registered as I&APs. The full list of stakeholders and IAPs is included in **Appendix B**. No comments or concerns were directly received by these stakeholders via email. The email correspondence string in **APPENDIX B** states that some members of the CMC will receive the Draft ESR and Draft EMP from the competent authority and will then provide input to their line ministries and back to the MET.

The BID document provided an overview and non-technical summary of the proposed development and acts as an easy reference to the proposed project. The BID is included in **APPENDIX B**. The BID was also distributed during the public meetings.

### 3.3.4 Public Meetings and Focus Group Meeting

Public meetings were held at Henties Bay Town Hall on the 4<sup>th</sup> April 2019 at 3pm and 6pm. The attendance lists for those attending can be found in **APPENDIX B**. Mr. Werner Petrick, a member of the EIA team, delivered the project presentation and the people attending were asked to give their comments on the project. The presentation is also given in **APPENDIX B**.

The whole community of the Coastal Management Committee, a large group of individuals representing many organisations, were emailed and invited to the focus group meeting at the fisheries building on the 11<sup>th</sup> April 2019. Tourism operators are well represented in this CMC group. However, only members of the Fisheries institute attended the focus group meeting. Mr, Philip Hooks, the EAP for the project, delivered the presentation and recorded minutes of the meeting. The minutes of the meeting and the attendance list is given in **APPENDIX B**.

## 3.4 Interested & Affected Parties Comments and Responses

A summary of the types of concerns raised at the public meetings and focus group meetings are presented here in Error! Reference source not found.. The full minutes of the meetings can be found with **APPENDIX B**

**Table 2. The main points raised by I&APs at the public meetings and focus group meetings.**

<b>Comments, Concerns &amp; Questions</b>
<p><b>Brine Pipeline:</b></p> <p>The C34 (coastal) road reserve is not a registered road reserve. The pipeline following the road reserve will also require an environmental clearance. Will the pipeline be above or below the ground? What will the quantity of brine be? There need to be access points to the sea, across the pipeline from the road. There could be a potential impact of access of fisherman to sea due to the pipeline. Where exactly will the pipeline be located? Will the pipe be located on edge of road reserve? Will pipes corrode or clog up (when enclosing the brine)?</p>
<p><b>Brine Source:</b></p> <p>I don't see the need for the pipeline and to pump the brine to Mile 68? Why pump from Cape Cross? What tests have been done to state that abstraction of the brine from within the Mile 68 salt pan for salt crystallisation is not sustainable and would result in the rapid dissolution of the existing rock salt and cause widespread subsidence of the constructed crystallisers - impacting their integrity? Why not stay at Cape Cross - if you can do the same at Cape cross?</p>
<p><b>Traffic Safety &amp; Haulage:</b></p> <p>IAPs wanted to know what the traffic impact would be on the roads from a perspective of safety and volume of traffic. They asked if it would be an option to haul salt by rail. They were informed that the traffic volume impact had been covered as part of the Cape Cross salt project. They were informed that safety aspects specifically for the Mile 68 project would be assessed by a specialist. IAPs wanted to</p>

<p>know if the salt would be transported in bulk or in bags. They also wanted to know how spillage from bulk transporting of salt would be affected.</p>
<p><b>Mining Licences &amp; Land Use:</b></p> <p>Was it an existing mine (at Mile 68)? Is it therefore two different areas under different licenses? Does the Gossow Salt Company also use crystallisers?</p>
<p><b>Road Diversion:</b></p> <p>Where will the road be diverted to?</p>
<p><b>Bitterns Discharge Pipeline:</b></p> <p>How long is the beach section that borders the project's crystallisers and how wide is the beach along this section? (i.e. beach parallel to the Mile 68 salt works)? How far will discharge point be? It is important to understand the baseline of the benthic communities / organisms. It is necessary to consider the impact of the immediate area of impact relating to bittern discharge.</p>
<p><b>Impacts on Environment:</b></p> <p>Social issues, i.e. increase in traffic and people impacting on seals need to be considered. There will be a presence of more people creating a risk to more, open access to the seal colony. Why does the EPL boundary extend into the beach area? Impacts of animals on the beach (i.e. Terns) need to be considered. Are there any lichens in the area? Will baseline studies be conducted, also for discharge of bitterns (i.e. marine environment)? Does the Act provide for a shortened EIA process? Cumulative impacts need to be assessed. Will there be on EMP?</p>
<p><b>Socio-economic:</b></p> <p>Where will the workers be employed from?</p>
<p><b>Infrastructure &amp; Utilities:</b></p> <p>IAPs asked if there would be any additional infrastructure constructed for power, communication and fuel storage. Will solar power be considered? Is the 'chosen power option' (i.e. diesel) sustainable? If another power supply is required at a later stage how will this be implemented? What about sanitation / sewage handling? Is there a Jetty at the Cape Cross lodge? Can that not be used for transferring salt onto vessels?</p>

### 3.5 Project Screening Decision

Prior to the scoping phase and after the public consultation the terms of reference for the impact assessments were fixed and the specialist studies required were commissioned. The following renders summary points from the consultation process that are either a priority or worthy of repeating. These points also guided the decisions regarding the specialist studies.

- A specialist marine ecology study needs to look into the effect of the mine activities on the intertidal ecology and beach fauna (i.e. seals, turtles and intertidal macro benthos)
- A specialist traffic study to review the safety aspects of road with respect to the vehicle volumes and consider the planned safety aspects of the re-routing of the road around the pan.
- A specialist study on the flora is required to consider the impact of the mining activities within the ML areas and along the brine pipeline route. The issue of the lichens was raised and the pipeline route along within the 'non-registered' road reserve.

- A specialist study of the fauna is required to consider the potential impacts on Damara Tern breeding areas.
- Socio-economic issues were an important component stemming from the questions about recreational fishing, pipeline placement and employment opportunities for local communities.
- Due consideration to be given to the necessity of project at this location by Gecko Salt. Are there alternative sites and is it necessary to pump brine from the Cape Cross salt pan.

Some aspects described in this report have been assessed without a specialist study as based on prior available secondary sources in the form of reports, professional judgement and direct observations made by the EAP. Those aspects that were not expected to be of affect and not expected to result in significant impacts were not considered for specialist studies. Some aspects have been considered for inclusion in the EMP in terms of mitigation measures and monitoring requirements for typical or industry norms even though no formal impact assessment was carried out either by a specialist or based on secondary data sources.

**Table 3** lists the aspects, summary description statements, potential impact severity and rationale to undertake an impact assessment or if such is not required. That is, whether the aspect was included or excluded from the impact assessment and lastly whether a specialist study was required or not for that particular impact assessment. This table must be read with the various project activities and facilities (Section 4) and the baseline environmental and social conditions (Section 5).

**Table 3. Screening Process for the Terms of Reference for the Impact Assessments**

Aspect	Summary Description	Potential Impact Severity and Rationale to undertake an impact assessment	Inclusion or exclusion from the impact assessment	Specialist study
Noise	Mobile plant and fixed processing plant produce noise.	Noisy machinery can potentially affect the environment by disturbing the natural and social environment. The latter will not be affected because the remote setting of the mine can have not negative effect on urban life either at night or in the day. The effect on large fauna is unlikely to be significant.	Exclusion	no
Flora	Plant and lichen biodiversity and ecological functioning	Potential exists that habitats and biodiversity may be negatively affected. This could lead to a lowering of biodiversity and ecological functioning. Severity is at least expected to be moderate or measurable.	Inclusion	yes
Fauna	Vertebrate biodiversity and ecological functioning	Potential that habitats and biodiversity may be negatively affected does exist. This could lead to a lowering of biodiversity and ecological functioning. Severity is at least expected to be moderate or measurable.	Inclusion	yes
Marine	Ecological functioning of the marine intertidal zone	Potential exists that the marine intertidal zone may be negatively affected. This could lead to a lowering of biodiversity and ecological functioning. Severity is at least expected to be minor but unsure of the confidence level.	Inclusion	yes
Archaeology	The existence of important heritage sites or artefacts within the mining licence area	Due to the highly disturbed nature of the mining licence area a minor severity of impact is expected but unsure of the confidence level. Included under the precautionary principle.	Inclusion	yes
Socio-economic	The increase in employment opportunities and the	The potential impact is expected to be a positive and cumulative impact. This project is a supplement to the sister salt project at Cape Cross. The next chapter describes	Inclusion	no

	nation's revenue through taxes.	the socio-economic baseline. Typical recommendations, mitigations and any monitoring requirements will be included in the EMP.		
Road safety	The capacity of the road for handling increased traffic and the public road safety along the planned new route and the intersection at the mine entrance and exit.	<p>The increase in traffic volumes is not expected to increase significantly and the road network analysis for the Cape Cross salt project showed that the threshold would not be exceeded.</p> <p>The safety aspects of the intersection and the planned re-routing of a section of the coastal road was potentially affected and significant impacts could potentially result.</p>	Inclusion	yes
Surface water	Impact on ephemeral rivers	<p>Two ephemeral rivers flow into the salt pan. The activities themselves will not prevent the rivers from flowing into the salt pan. The coastal road has formed a 'dam wall' across the salt pan from the time it was constructed. The diversion road will create the same obstruction. The mining activities could be potentially affected by flooding and activities would resume after potential reparations have been made. The mining project will not make any material changes to the existing situation.</p> <p>Spills of sewerage and diesel fuel could potentially occur and affect surface water receptors (i.e. ephemeral rivers and salt pan surface). The mitigation of such potential impacts will be covered in the EMP.</p>	<p>Exclusion</p> <p>EMP only</p>	no
Groundwater	The abstraction of brine from the Cape Cross salt pan and utilisation at Mile 68 salt pan	<p>The long-term sustainability of this abstraction is likely because of the sheer volumes of brine available and the continuous inflow of seawater into the Cape Cross saline groundwater system. An analysis of the planned usage and comparison with the greater Cape Cross salt project resulted in an expectation that no cumulative effect will result.</p> <p>Spills of sewerage and diesel fuel could potentially affect the crystallisers or the subterranean brine groundwater. The mitigation of such potential impacts will be covered in the EMP.</p>	<p>Exclusion</p> <p>EMP only</p>	no

		The mitigations incorporated into the EMP for the Gecko's Cape Cross salt project will be considered for inclusion in the EMP for this project. The mitigations, recommendations and monitoring is described in the previous chapter.		
Air quality	The creation of dust during construction and operational activities.	<p>The construction and operational activities are not expected to create dusty conditions on multiple days exceeding those that are typical during windy conditions during morning dust storms in winter or windy spring and summer afternoons.</p> <p>Typical mitigations for dust suppression will be included in the EMP as are practically possible in this remote and arid location.</p>	Exclusion  EMP only	no
Visual – sense of place	The planned infrastructure within and without the salt pan will alter the appearance of the pan compared to the existing disturbance of previous decades	<p>The construction of a new road route around the pan is expected to improve the sense of place as the vista across the pan would be from a greater distance and any structures on the pan would not be so noticeable. The processing plant and mobile plant garages near the new road route is visible for a short time during journey of tourists through the area. The new road route takes any tourists through an area of more variable terrain. Only the permanent brine pipeline from Cape Cross to Mile 68 salt pan would be visible along a section of the road and could potentially contribute negatively to the sense of place for the public using the road. The mine site is remote and would not affect the sense of place for residents of an urban environment. It is important to note that this is a brown fields project and the expectation for many decades has been that salt mining activities occur in this area. The area has been historically disturbed and no significant change to the sense of place is expected. Thus, there is no cumulative impact to be expected.</p> <p>Typical mitigations for creating a pleasant visual experience will be implemented and these will be included in the EMP. Stakeholders provided their opinions regarding the brine pipeline.</p>	Exclusion  EMP only	no

Land use	The planned salt mine is located within the Dorob National Park.	<p>Historically, salt mining has occurred within various salt pans along the central Namib coastline long before the declaration of the Dorob National Park. Tourism related activities have occurred alongside salt mine for decades. It is understood that within the Dorob National Park there are areas of high priority due to their sensitivity to disturbance. The area has been historically disturbed. The planned infrastructure and salt pan activities was not expected to fall within one of the highly sensitive zones within the Dorob National Park. The Fauna and Flora assessments were deemed sufficient to address any potential risks with respect to this aspect.</p> <p>The guidelines and park rules will be incorporated into the EMP. Tourism is discussed with the socio-economic impact assessment. Conservation aspects are described in the previous chapter. Potential negative impact on third party users of the area are to be assessed.</p>	Inclusion under socio-economic impact assessment	no
Waste Management	Storage and disposal of waste.	The expectation is that all non-mineral waste will be removed from site on a weekly basis. Guidelines will be given in the EMP.	Exclusion EMP only	no



### 3.6 Impact Assessment Terms of Reference

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 Gecko Salt Cape Cross salt mining project. Mitigation measures and monitoring requirements for all the aspects are incorporated into the Draft EMP.

Alternatives for the various aspects of the proposed development were discussed with the individual specialists and, based on their input, with due consideration of the comments received by the public and stakeholders also the project proponent's development plan and description, either only one option or all options were then weighed up in the assessments.

The project alternatives have been 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 road.
- The brine pipeline would lie on the surface.
- 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 **APPENDIX E**.

The 'no go' alternative was not expected from an environmental perspective and although the neighbouring ML holder would prefer that Gecko not continue to consider Mile 68 salt pan as an addition to their Cape Cross salt project, the proponent has remained steadfast in their intention to go ahead with the project at the Mile 68 salt pan. The economy of scale is the greatest incentive to go ahead with the project at Mile 68 and the argument remains strong.

### 3.7 Public Review

Mr Werner Petrick as a member of the EIA team undertook the review of the ESR report and Draft EMP.

No direct I&AP correspondence, nor comments or concerns were received by email or other form of correspondence up to this date. All comments received were made at the public meeting and focus group meeting. The public review period for the Draft ESR and Draft EMP was from 23<sup>rd</sup> September to the 21<sup>st</sup> October 2020. Notification of the review period was made to all IAPs and electronic access to the draft documents will be granted and communicated.

Physical copies of the draft documents have been deposited and made available to the public at the following locations:

- Henties Bay Municipal Offices
- Swakopmund Library

### 3.8 Final Report

The only comment and recommendation received was from the Mr. Rod Braby. His concern about the population of breeding Damara Terns has been noted and changes to this report and the EMP have been actioned. Mr Braby's full response is provided in **APPENDIX B**.

Notice of the report finalisation has been sent to all IAPs, A final copy of the report and appendices has been submitted to the MEFT and MME. Access to the final documents has been granted and links sent to all IAPs.



#### 4. PROJECT DESCRIPTION

Gecko Salt received environmental clearance for its salt mining project on the Cape Cross salt pan on 24<sup>th</sup> October 2018. The Cape Cross project is located about 15 kilometres north of Mile 68's saline pan. Based on this approval of the Cape Cross EIA report and EMP, the proponent applied for a Mining Licence to the MME for this Cape Cross project. The planned Mile 68 salt mining project provides similarly good conditions for constructing crystallisers for producing salt. If environmental clearance is granted for the current project then commencement will occur within the first period of the clearance.

15 rectangular constructed crystallisers are planned to be constructed upon the surface of the Mile 68 pan. The Mile 68 salt pan does not have a large resource of rock salt and a brine aquifer like the salt pan at Cape Cross (Oliver Krappmann, pers. Communication). Therefore, abstraction of the brine from within the Mile 68 salt pan for salt crystallisation is not sustainable. By this it is meant that brine pumping from the Mile 68 salt pan will result in the rapid dissolution of the hard foundation beneath the surface of the salt pan which will cause widespread subsidence of the constructed crystallisers thereby impacting the integrity of the pan.

Thus, a pipeline conveying saturated brine from the Cape Cross salt pan is planned for solar evaporation and further processing at the proposed Mile 68 crystallisers. The Cape Cross salt pan comprises a large shoreline pan with many mineral licence holders utilising the salt pan. By importing brine from the Cape Cross salt pan, the integrity of the Mile 68 salt pan's substrate will be conserved. The brine will be sourced from within Gecko Salt's ML210 at Cape Cross and the pipeline route will pass through the Salt Company's ML11 from Gecko's ML210. Brine abstraction for conveyance and for solar evaporation outside of the Cape Cross pan has been included and was assessed as part of the EIA for Gecko's greater Cape Cross salt project. Error! Reference source not found. renders an image of the Mile 68 salt pan envisaged layout.

The proposed Mile 68 salt project includes the following components:

- Crystalliser construction and operation,
- Construction and operation of a salt processing facility,
- Pipeline construction and brine conveyance (from ML210 at Cape Cross to Mile 68),
- Bittern discharge into the sea,
- New road development,
- Power generation (Diesel Generators),
- Fuel storage (Bunded Diesel Tanks),
- Security and shift staff accommodation (at Mile 68),
- Salt product transport or haulage

**Figure 2** and **Figure 3** render maps with the layout of the various components listed above. The following is the summary of envisaged development with primary salt production and processing activities that are expected to be undertaken by the project proponent during the different project development phases.

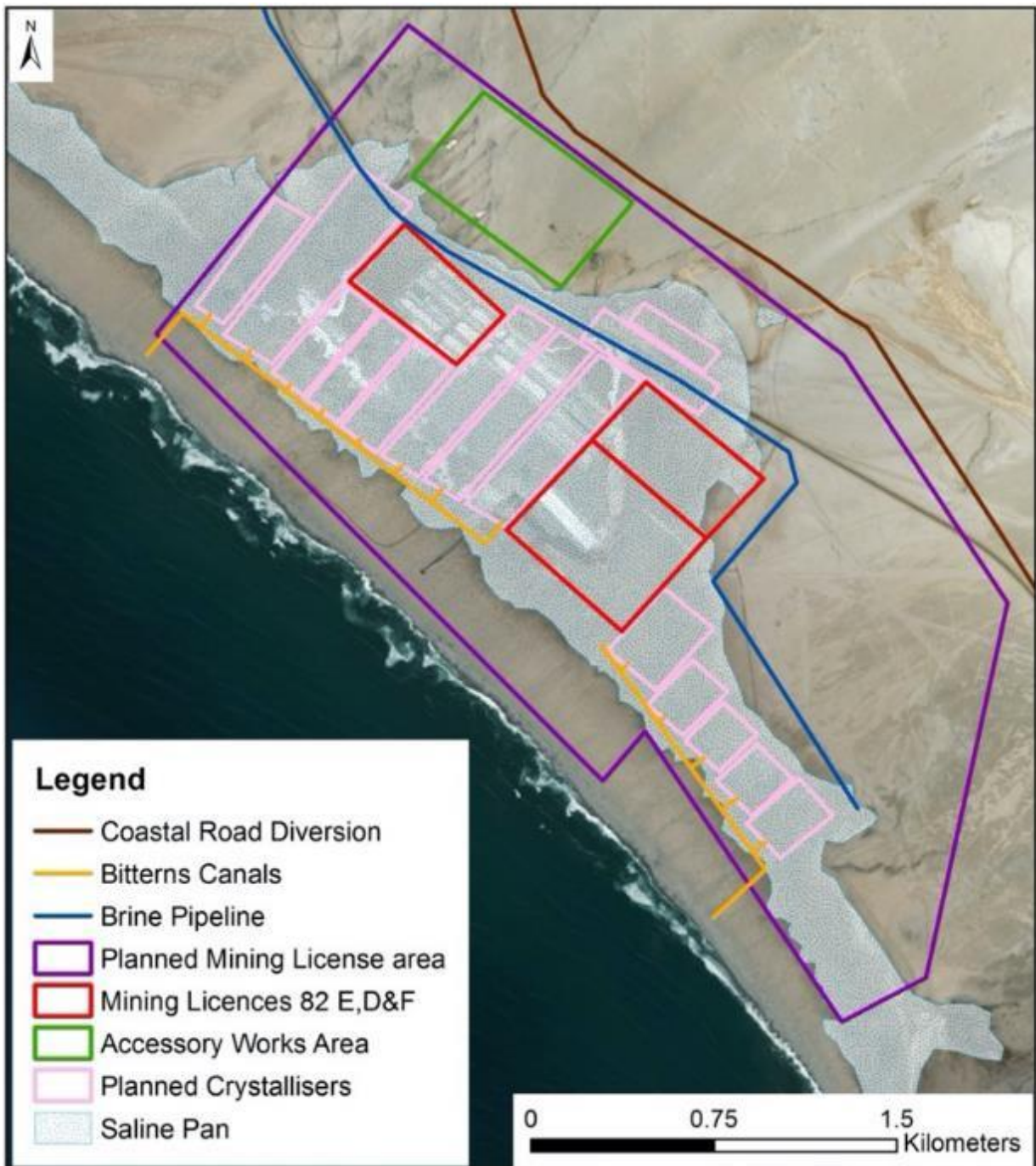


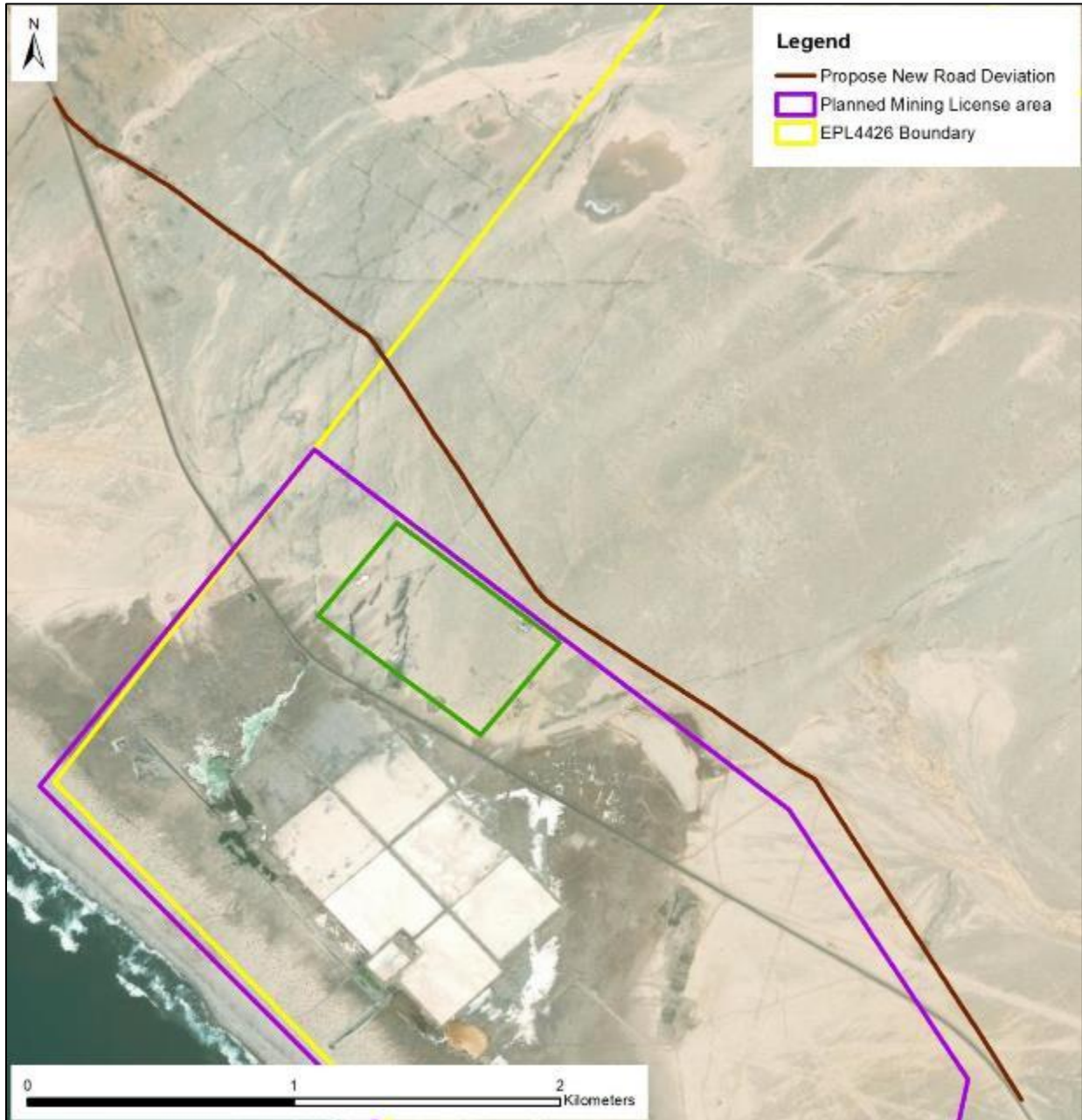
Figure 2. Layout of the project infrastructure and activities (Satellite imagery from before 2015)

#### 4.1 Construction Phase Activities

This will comprise of the following:

1. Construction of salt pan crystallisers
2. Construction of a salt processing facility (includes fuel storage and power generation facility)
3. Construction of a new section of C34 road
4. Construction of a new brine pipeline from the Cape Cross salt pan
5. Construction of bitterns discharge pipelines.

A new section of the C34 road, about 5 km long, is planned to permanently divert traffic around the new salt works to the north east (see **Figure 3**). Construction of this road is to take place partly along an old existing road.



**Figure 3. New road diversion around the Mile 68 saltpan (Satellite imagery from 2018)**

In the development and construction phase, salt crystallizers will be established on the impermeable base of the natural salt pan. The construction involves levelling and compacting the salt pan surface and the construction of impermeable sidewalls using sheeted UPVC plastic liner and clay with sand and gypsum from the salt pan's surface layer.

A PVC pipeline with a 25 cm diameter for brine transport from Cape Cross (i.e. ML210) to the Mile 68 pan (see Figure 4) will be constructed. The pipeline will follow the road reserve for

the entire length between the salt pans. See the baseline imagery of the route in **APPENDIX C**. The plan is to lay this pipeline above the ground and on the east side of the road.

Solid waste will be removed off site and taken to Henties Bay's rubbish dump. Ablution facilities will use sealed septic tanks and the sewerage taken to the Henties Bay sewerage plant periodically. No power supply infrastructure to the site is planned but electricity requirements will rely on diesel generators. Construction staff will be accommodated at the Cape Cross Gecko Salt accommodation camp and not at Mile 68. Security will be supplied on a 24-hour basis at the mine and processing plant construction sites. The support services and facilities constructed during this phase will either be removed at the end of the construction phase or incorporated into the operational phase of the project.

## 4.2 Operational Phase Activities

Salt production at Mile 68 will be similar to other solar salt facilities near Swakopmund and Walvis Bay and in many solar salt production facilities in the world. The difference is that the Mile 68 salt works will operate from concentrated brine conveyed from Cape Cross instead of conducting a gradual evaporation process from seawater. **Figure 4** renders a map which shows the approximate route of the brine pipeline along the existing coastal road and across the pan at Mile 68.

### 4.2.1 Operational Times

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. Accommodation facilities at Mile 68 will be constructed for a core shift staff.

### 4.2.2 Brine Source

The brine will be pumped from the Cape Cross salt pan via a pipeline. The maximum design pump rate / volume for the pipeline will be 1.5 million m<sup>3</sup> of brine per annum.

Pumping of brine from the large Cape Cross reservoir will ensure that brine of high salt concentration is immediately available for crystallisation at the Mile 68 evaporation pans. Concentrated brine from Cape Cross will be pumped directly into the shallow crystallizer pans.

### 4.2.3 Salt Production

Salt crystals precipitate from the saturated brine from the floor and sides of the crystalliser into the brine. The wind and sun drive the evaporation of the water, thereby increasing the concentration of the brine solution. The warmer and the windier the climate, the greater the evaporation and the greater the precipitation or crystallisation that will result from the process. The crystallisers will produce approximately 220 000 tons of salt from the planned development on an annual basis.



#### 4.2.4 Bitterns Discharge

Magnesium and unwanted salt ions which do not crystallize with the sodium chloride salt accumulate over time in the crystallizer brine and require to be purged to the sea prior to harvesting of the salt. The discharge of these bitterns will take place onto the beach below the highwater mark. The bitterns' pipeline will be made of black durable plastic (PVC) with a diameter of 13 inch, flanged every 6 metres. The pipeline will be laid partially underground to cater for a constant slope from the crystallizer outlet trench to the discharge point on upper-tidal beach elevation and to ensure minimum disturbance to the habitat of the dune hummocks. Discharge of bitterns is expected to take place intermittently and on an infrequent basis. **Figure 2** above renders a map showing the planned bitterns' pipeline routes.

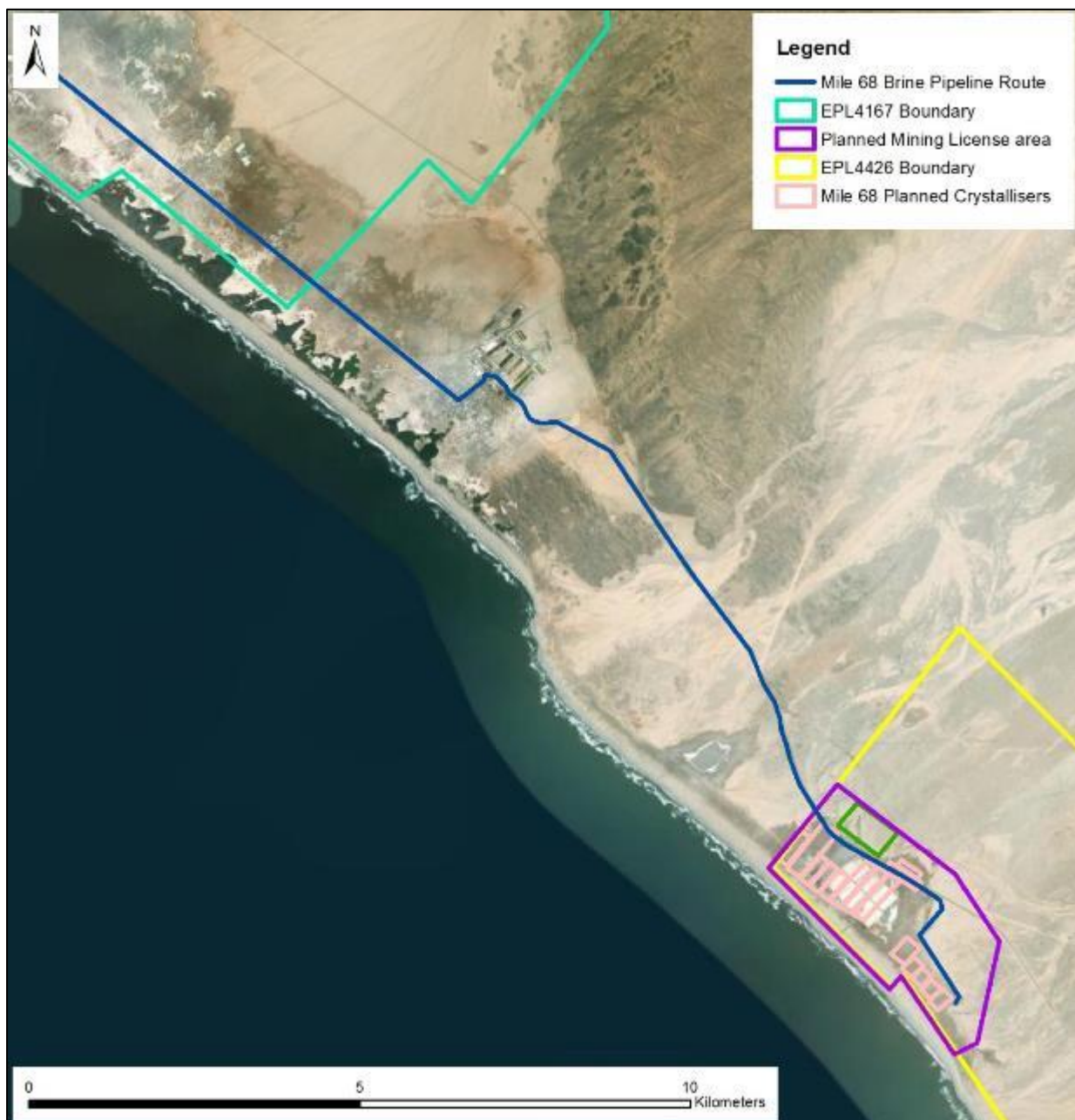


Figure 4. Brine pipeline route from Cape Cross salt pan to Mile 68 salt pan with the envisaged mining licence area shown in purple



#### **4.2.5 Salt Harvesting**

After allowing for solar evaporation and growth for approximately six months the new salt layer is removed by using a customized salt harvester. The planned solar salt production facility at Mile-68 will allow for production of approximately 220 000 tons of crystallised salt.

#### **4.2.6 Salt Processing**

From the harvester the salt gets loaded directly onto dump trucks which take the raw product to the processing site. The process plant will comprise of a crusher, salt wash section and a bagging plant. Furthermore, ancillary pipelines, power generation, ROM and product storage, offices and workshops will be required.

#### **4.2.7 Energy Source**

The processing plant will receive electrical energy from diesel powered generators. The diesel will be stored in a self-bunded container which meets the requirements for safe containment. Diesel consumption at the site will be approximately 20 000 l per month, which also includes the harvesting and other mobile plant at site.

#### **4.2.8 Water Source**

Fresh potable water for the offices and ablutions will be trucked in from Henties Bay as and when the need arises.

#### **4.2.9 Salt Haulage**

Salt will be transported as bulk cargo as well as in bagged form. The salt production which is planned for the Mile 68 crystallizers will fall into the overall production envelope that has been planned for Gecko Salt's Cape Cross project. Thus, the eventual product haulage rates will remain within the limits that were assessed for the Cape Cross Salt Project.

Some of the truck drivers may come from or want to live in Swakopmund or Walvis Bay where the larger towns can offer better schools and recreation benefits although the cost of housing is likely to be higher. Recruitment from Henties Bay will carry a more significant positive local impact compared to recruitment from Swakopmund or Walvis Bay, where there are more employment opportunities.

### **4.3 Decommissioning Phase Activities**

The life of the mine is unknown currently. The very large resource of rock salt and saturated brine at the nearby Cape Cross salt pan can sustain pumping of brine as envisaged for the Mile 68 operation. Solar salt production, which ultimately has the vast resource of the sea as raw material, can operate sustainably for an unlimited period.

Decommissioning activities will include the removal of infrastructure, preparation of final landforms for closure and where necessary rehabilitate the environment as close as possible to baseline conditions as at the commencement of the project.

It is anticipated that the proposed construction will commence within six months of receiving the ECC from the MEFT and that the relevant permits and licences have been issued by the different regulatory bodies.

## **5. DESCRIPTION OF THE RECEIVING ENVIRONMENT**

### **5.1 LAND USE, MINING LEGACY & CURRENT DISTURBANCE FOOTPRINT**

#### **5.1.1 Land use**

The planned mining project is to be located within the Dorob National Park, whose primary purpose is conservation of natural heritage. This does not exclude other subsidiary activities such as tourism and mineral exploration and extraction except where strict nature reserve status is delineated. Controlled access may be permitted for tourism in these strict nature reserve areas though not all these protected areas are sign posted or controlled by physical barriers. The planned mining activities will not occur inside one of the strict nature reserve areas. Recreational fishing may take place on occasions along the beach, west of the mining licence but mining activities will in no way restrict these activities.

#### **5.1.2 Mining Legacy & Current Disturbance Footprint**

The Mile 68 saltpan area includes a few existing mining licenses as well as remnants of historical salt production. The ESR for Gecko Salt's EPL4426 has the existing mining licences approximately delineated (dark blue outline) on the satellite imagery in **Figure 5**. This delineation was in accordance with the EPL4426 EIA stakeholder consultation with Mr. Jurgen Gossow who confirmed the EAP's estimated extent of his licences over the pans surface area. The boundaries of the mining licences (ML)82DE&F on record at MME do not correspond with the extent of operations as indicated by Mr. Gossow but comprises a much smaller area as shown on the image below with the black outlines.

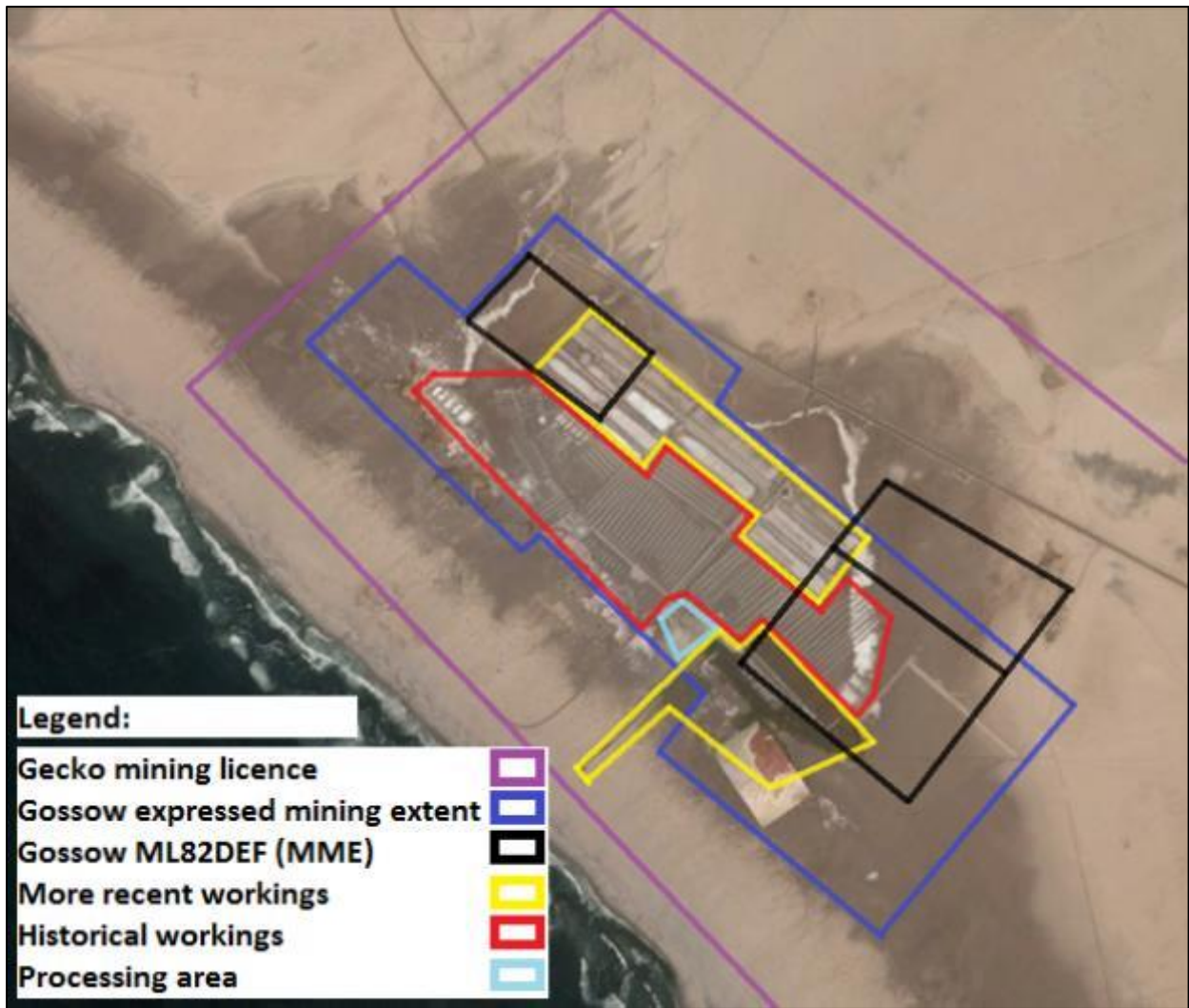


Figure 5. Historical and more recent salt mining activity on the Mile 68 salt pan (Satellite imagery 11.05.2013)



**Figure 6. View across the Mile 68 saline pan from the beach and towards the old Fisherman's Inn (photograph taken in 2015)**

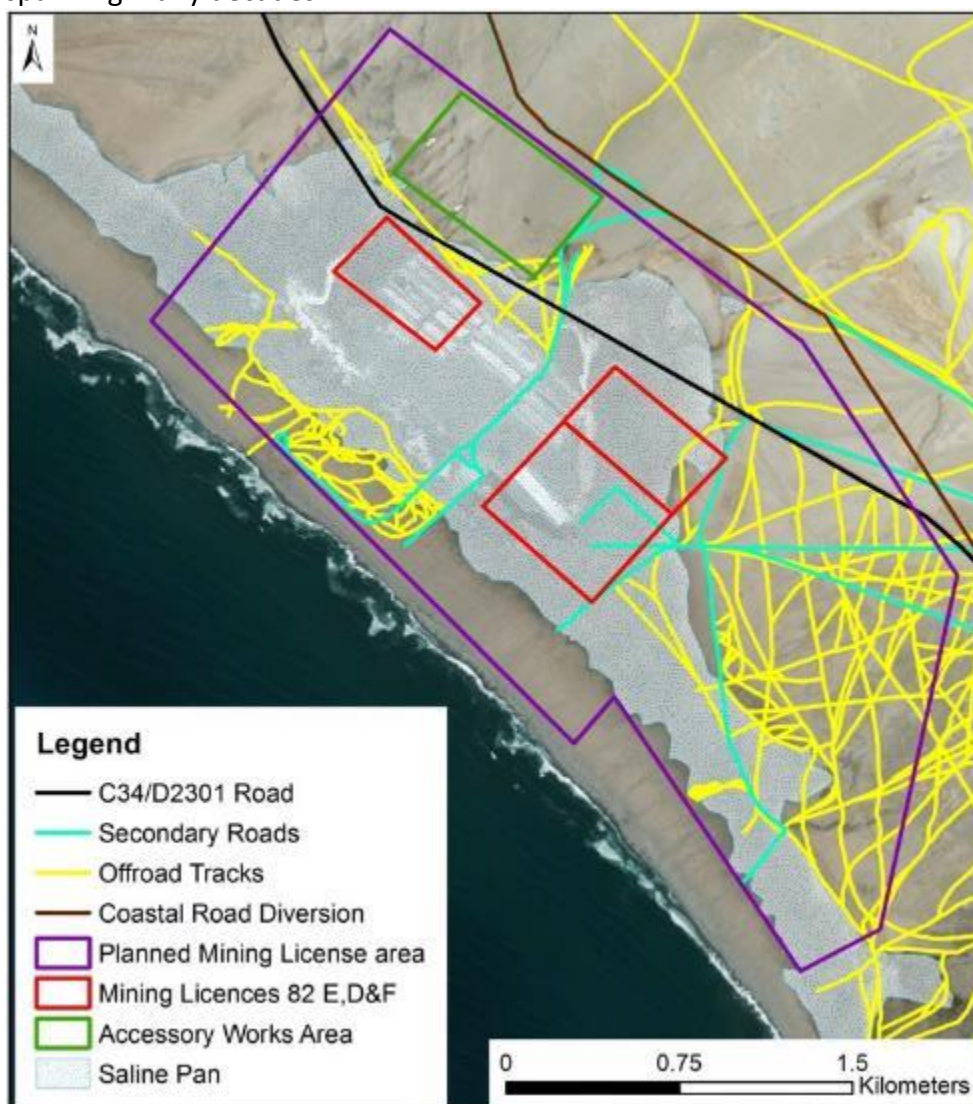
The Mile 68 salt pan has been mined for salt intermittently during the last 80 years. Remains of those workings can still be seen. The old mine's former buildings later became the Fisherman's Inn on the eastern flank of the pan, which was frequented by fisherman and tourists.



**Figure 6** above renders an image of a view across the pan showing the old mine workings and the Fisherman's Inn.

The area around the pans is densely lined with vehicle tracks. A digitised map of the visible tracks from satellite imagery was produced and is rendered in **Figure 7**. The track footprint is extensive to the west of the main road and amongst the dolerite ridges. There may even be more tracks as the process of digitising the tracks from satellite imagery would have most likely missed the older, fainter and less used tracks. Most of the tracks west of the main road are more recent since the establishment of road C34 and are related to recreational fishermen accessing the beaches.

Since 2015, the Fisherman's Inn was closed and Gossow Holdings (Pty) Ltd started preparations to mine salt again at the Mile 68 pan. The historical extent of the mining activities are shown on the map in **Error! Reference source not found**. The mining licences on record with MME are numbered ML82 D,E & F and this **Figure 8** renders a satellite image of the Mile 68 salt pan showing these licences and the historical mining activities within the pan spanning many decades.



**Figure 7. Digitised tracks and secondary roads across the desert and saline pan within and outside the planned mining area.**

The boundaries for the mining licences on record with the Ministry of Mines & Energy (MME) cadastral system are rendered on the maps but do not coincide with the licence holders'

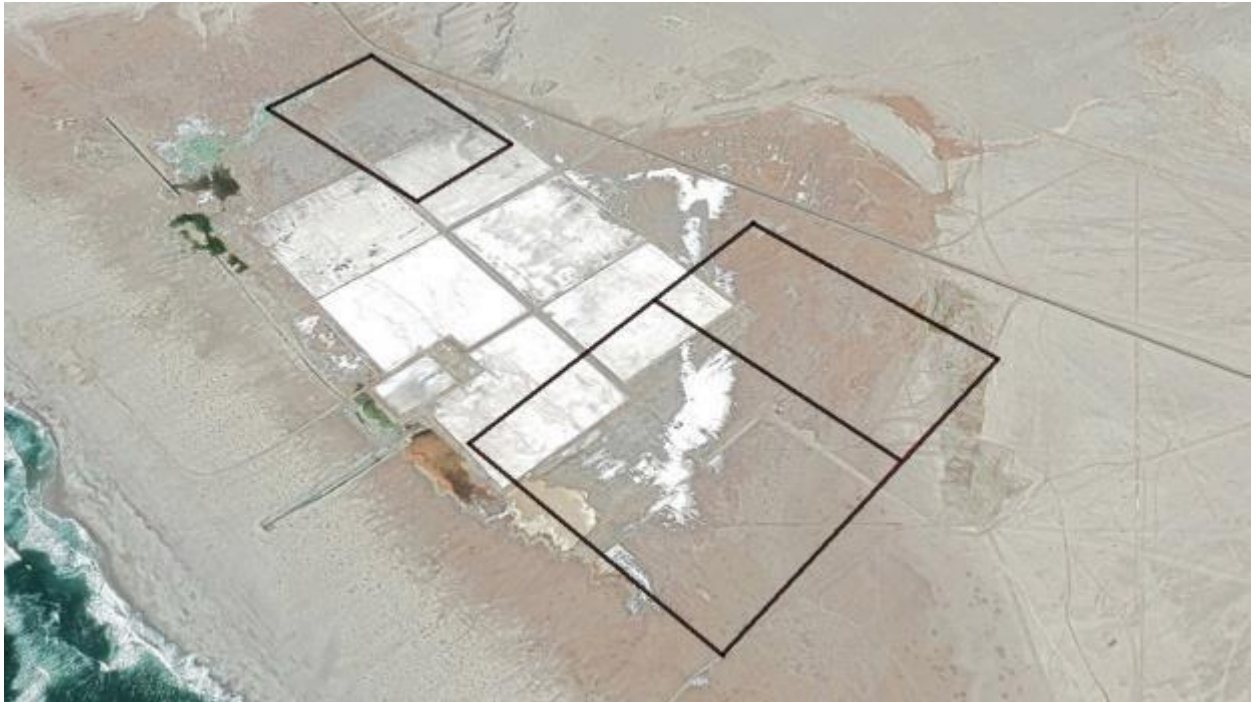


operational extent in **Figure 5**. Current status of the workings on the salt pan is rendered on the satellite imagery in **Figure 9**. Gecko Salt's proposed project uses the officially recorded boundaries as per MME to fit in their planned crystallisers regardless of the current operational extent by the mining licence holder of ML82D,E&F. This scoping report with assessment is not mandated to assess or define how the licence holders will amicably settle the dispute and how they will mine salt alongside one another. It can only be highlighted that some form of arrangement for joint use of the salt pan will need to be finalised should both parties wish to continue with their projects.

A comprehensive library of images showing the existing disturbances within the salt pan and within other habitats inside the mineral licence area and along the new road route and pipeline at different times in the past 10 years is given in **APPENDIX D**. The imagery in the appendix also shows the changes which took place from 2015. The rock outcrops show progressive disturbance during this period and it appears that the current mining operators have used the rock material from this habitat for various infrastructure development.



**Figure 8. Aerial Imagery from 2010 of the Mile 68 Saline Pan with ML82 D, E, & F boundaries in black as per Ministry of Mines & Energy records.**



**Figure 9. Aerial image from July 2018 of salt mine workings on the Mile 68 saline pan.**

## 5.2 CLIMATE

Climatically the area is classified as a Hot Arid Desert (Kottek, et al., 2006). It occupies one of the most arid areas in Africa south of the Sahara, with a mean annual rainfall of below 50 mm, and the coefficient of variation in annual rainfall extremely high at >100% (Mendelssohn, et al., 2002).

Due to high evaporation rates, the average water deficit is about 2 m per year. The study area has more than 100 days of fog per year (Mendelssohn, et al., 2002), providing a crucial source of moisture for life in the Namib desert. Coastal fog is driven inland from the cold Atlantic Ocean by the wind. Southerly, westerly and south-westerly winds are prevalent, and are usually strongest between late afternoon and early evening (Mendelssohn, et al., 2002).

The coastal wind-induced upwelling characterising the Namibian coastline is the principal physical process which shapes the marine ecology of the region. Upwelling and the consequent high nutrient supply to surface waters leads to high biological production and large fish stocks. The prevailing longshore, equatorward directed winds move nearshore surface water northwards and offshore. To balance the displaced water, cold, deeper water wells up inshore. The rate and intensity of upwelling fluctuates with seasonal variations in wind patterns.

On a global scale, the study area falls in the Afrotropical Region for all vertebrate taxa and on the regional scale, in the Namib Desert biome with a Central Desert vegetation type (Mendelssohn, et al., 2002).

Coastal biogeography places the Central Desert in the warm-temperate Namib Province which extends northwards from Lüderitz into southern Angola, in a transition zone from a temperate to a tropical fauna, and in the northern limits of the Benguela upwelling system. Average annual temperatures in this desert environment are relatively low (<18°C) due to the influence of the cold Benguela Current and the South Atlantic Anticyclone (Mendelssohn, et al., 2002).

Considering this description of the climate it is not expected that the mining operations will have any significant cumulative effect on the ambient conditions with respect to the dust and the air quality conditions stemming from such conditions.

## 5.3 GEOLOGY & GEOMORPHOLOGY

The coastal strip topography between Henties Bay and the Ugab River is dominated by a virtually continuous linear sandy beach, which north of Henties Bay to the Cape Cross salt pans, is backed by low sandy cliffs. Rocky shores are limited to a few short sections of coast and a larger rocky shore at the Cape Cross peninsula. North of Cape Cross the coastal strip is covered by a ~3 m thick layer of loose sea sand, which stretches inland through a series of hummock dunes.

East of the hummock dunes the topography consists of flat saline pans of varying size, bordered by gravel plains and undulating rock outcrops. The gravel plains and rock outcrops



are intersected by a few large and many small ephemeral washes. The habitat descriptions give detailed information on the topography of the study area.

### **5.3.1 Geology of the area**

The area forms part of the coastal plains of the Namib Desert and comprises a portion of the Cape Cross – Uis Pegmatite Belt which has intruded Damaran-age meta-sediments and granites. Rare metal granitic pegmatites occur within this pegmatite belt and potentially within the area beneath the cover of Namib Group alluvial sediments. There is also the potential existence of rare and precious, or base metals in marine and fluvial placer deposits.

### **5.3.2 Geomorphology of the salt pan (surface water and ground water)**

The salt pan is made of layers of salt and gypsum which have been formed by evaporation within a coastal lagoon of restricted sea water circulation. The water table in the pan is situated close to surface and it is in connection with the sea. Due to high permeability of the rock salt and surrounding sediments the seawater percolates into the pan and in a continuous process of leaching of the salt and new formation of salt through evaporation and crystallization, the concentration of the underground brine is found to be near saturation. (Toerien 1964)

Unlike the Cape Cross saltpan, the relatively smaller size of the saltpan at Mile 68 and the influx of fresher solutions from the ephemeral washes, the rock salt deposits are not as prevalent. At Cape Cross salt pan the brine groundwater and rock salt volumes far exceed that of the Mile 68 and thus Gecko intends to utilise this resource for producing salt at the Mile 68 salt pan.

Surface water in the form of standing sea water results from intermittent spring tides and corresponding stormy weather which breaches the beach berm. On rare occasions when flooding occurs, will the washes flow into the saline pan and fresh water floods the pan. The fresh water of lower density floats on the saltier brine of the pan and soon evaporates leaving behind the brine below.

### **5.3.3 Terrain**

Due to the low terrain of the area anyone driving along the coastline enjoys a good view of the pan from the coastal road. There are no major relief features that hide the pan and the operations from sight.

## **5.4 FLORA**

The data for this section was sourced from “Mile 68 Flora Assessment Report” (Hooks, P. 2019, for Gecko Salt) and it deals with terrestrial biodiversity only. The full study on flora can be found in **APPENDIX E**.

The Namib Desert harbours numerous endemic and near endemic plant and lichen species, of which many are of restricted distribution or habitat. 30% of the endemic Namibian plants occur in the Namib Desert. However, in the context of this project it is important to note that the areas of highest plant endemism in the Namib are the Kaokoveld and the southern

Namib, both regarded as major centres of endemism in Namibia. Researchers concluded that the levels of plant endemism are comparatively lower in the central Namib, which is not generally regarded as a 'hotspot' of endemics restricted to that zone.

The specialist study considered the potential impacts on the flora within the planned mining licence area, in particular within the salt pan and planned accessory works area, along the route of the brine pipeline and along the re-routed road. The habitats within the road reserve along which the brine pipeline will be laid have been disturbed and therefore only negligible flora would be impacted from this development. The re-routed road will disturb a small surface area of undisturbed gravel plain, dry watercourses and rock outcrops. Much of this road diversion was already disturbed as most of the route lies on an old existing road. The rock outcrop habitat within the accessory works area have already been disturbed by excavations in the past few years. The gravel plain within the accessory works area is currently the least disturbed area that will be affected by the planned salt production and related activities. However, the significance of this impact will be low, for reasons that are explained in the following sub-sections.

#### **5.4.1 Lichens**

The lichen fields and biological soil crust of the Namib are vulnerable to destruction, and recovery in this extremely arid zone is slow. Often damage may therefore be regarded as permanent. In particular, lichens are fragile, taking 5 to 500 years to recover from vehicular disturbance. These are highly vulnerable to the impacts of off-road driving. The lichen fields in the central coastal area have been identified as an important plant area.

Within the proposed mining licence area lichens are found in each of the habitats to varying degrees. A greater variety and abundance of lichens were observed within the rock outcrop and gravel plain habitat. More biodiverse lichen gravel plains occur outside the proposed mining licence in areas where very little disturbance of the desert has occurred. Thereafter, the washes and hummock dunes may host lichens on gravel, rocks and plants. Lastly, the salt pans may offer some niches for lichens but rarely so. Thus, in terms of environmental importance it is the rock outcrops and gravel plains that should enjoy the most attention when considering the conservation of habitable environments for lichens

#### **5.4.2 Floral habitats**

Five habitats were identified in the project area, based on combined floral and faunal characteristics (Figure 10). The habitats are discussed in this section in terms of the physical characteristics of the habitat including typical plant species, the diversity of niches within that habitat and the diversity of that habitat compared to other habitats.

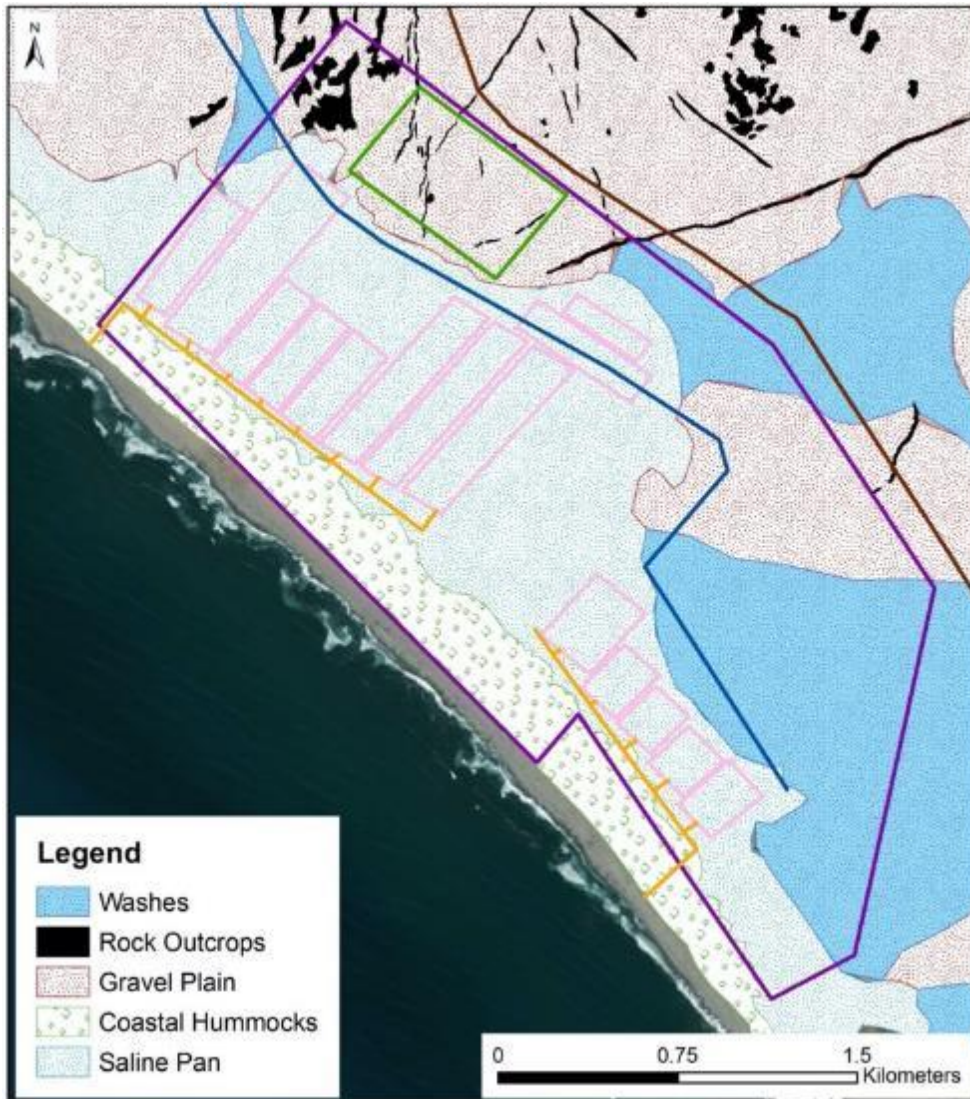


Figure 10. Mapped habitats within the planned mining area (purple boundary).

#### 5.4.2.1 Rock outcrops

These ridges vary from well-developed areas with species-diverse succulent vegetation and large boulders that offer numerous microhabitats, to lower, less developed dolerite or quartz or marble ridges or outcrops. These ridges may only manifest as low, dark, gravelly areas which are forming slightly higher relief than the surrounding plains. Besides harbouring a number of endemic and protected plant species, some of restricted distribution, they very often carry well developed lichen communities as well. There are only a few rock outcrops within accessory works area that could be affected by construction and operation activities. In fact they have already been disturbed or damaged by recent and historical activities. See the section above which discusses the disturbances and see the imagery in the appendices rendering satellite imagery of the disturbances.

Characteristic species, of which many are endemic and at least one is protected, include *Euphorbia giessii*, *Euphorbia lignosa*, *Jamesbrittenia maxii*, *Kleinia longiflora*, *Heliotropium oliveranum*, *Eberlanzia sedoides*, *Pelargonium otaviense*, and *Sarcocaulon marlothii* with

*Brownanthus kuntzei*, *Zygophyllum stapffii*, *Tetragonia reduplicata*, *Drosanthemum luederitzii*, and *Arthroa leubnitziae* dominant. *Hoodia pedicellata* occurs occasionally. Not all of these plants were found during the site visits but are possibly found on the rock outcrops within and outside the planned mining area.

The higher diversity found here can be ascribed in part to greater niche diversity as well as higher moisture levels from fog collection. These factors are also likely to account for the occurrence of disjunct species such as *Euphorbia giessii* and *Hoodia pedicellata*. Regardless of whether there may or may not be other equally diverse ridges in the central Namib these ridges are islands of high plant diversity.

#### **5.4.2.2 Saline pan**

It is characterised by fine, dark sand of an 'oily' consistency with frequent surface salt deposits outside the man-made crystallisers. A saline pan that does not receive regular inflow from the sea is almost always without any vegetation whatsoever. A saline pan that lies closer to the sea and always contain standing water, or get regular inflow, carries quite dense marginal stands of a single species, *Sarcocornia natalensis*, a low-growing halophytic succulent, as in the case of Cape Cross saline pan. It is not known how regularly the sea breeches the beach berm and fills the pan at Mile 68 but the berm is very wide. A few *S. natalensis* plants were observed during the site visits. Additionally, no permanent surface water was observed, and none has been observed from historical satellite imagery.

Small brine ponds are visible within the pan. It is not known if these existed prior to the historical salt mining. No vegetation appears to be associated with these brine ponds.

#### **5.4.2.3 Coastal hummocks**

This hummocky habitat is restricted to a coastal belt directly inland from the littoral zone and represents the first line of terrestrial vegetation. Characteristic species are *Zygophyllum clavatum*, *Brownanthus kuntzei* and *Arthroa leubnitziae* (pencil bush), *Drosanthemum luederitzii* and *Zygophyllum stapffii* (dollar bush). This habitat is generally dominated by *Z. clavatum*. *A. leubnitziae* is commoner where dry watercourses reach the sea.

The coastal hummock habitat opposite the saline pan is broad in comparison to the one opposite the Cape Cross saline pan.

No plant species of high conservation concern are likely to be found in this habitat. *Z. clavatum* is restricted to a narrow coastal strip but it occurs right down into South Africa and is not regarded as threatened at present. Gravel plain

By far the most represented habitat in the proposed mining licence area after the salt pan is the gravel plain, this habitat is dominated by *Arthroa leubnitziae*, an endemic but common and relatively widespread succulent shrub. *Tetragonia reduplicata*, *Zygophyllum stapffii* and *Drosanthemum luederitzii* are occasionally present. Diversity is very low on these plains, and no species of high concern are expected to be found.

Lichen cover varies greatly, but over much of the planned mining area it is generally sparse, whereas the outer plains between the dolerite ridges carry a greater number of specimens.

#### 5.4.2.4 Washes

A number of dry watercourses or washes run through the planned mining area. The washes constitute sandy gravels visually discernible by the more numerous *Arthroa leubnitziae* which have established in the moister conditions. The washes that run through the dolerite ridge areas are rockier. The species composition is more varied in the latter and this habitat is expected to harbour spreading perennial succulents such as *Galenia procumbens*, *Psilocalon salicornioides* and *Tetragonia reduplicata*. During the site visit, *Zygophyllum stapffii*, *Drosanthemum luederitzii* and *Lycium decumbens* were observed in considerable numbers. There were also annuals present, such as *Zygophyllum simplex*, *Senecio engleranus* and *Sesuvium sesuvioides*. No plant species of high conservation concern are expected to occur in this habitat and lichens are sparse, probably due to intermittent disturbance when the washes flow.

### 5.5 FAUNA

This section deals with terrestrial fauna, and specifically with four terrestrial vertebrate taxa: mammals, birds, reptiles and amphibians. The origin of this section is “Gecko Salt Mile 68: Fauna baseline study and impact assessment” (Potgieter, H. 2019, for Gecko Salt). The full study can be found in **APPENDIX E**.

In a specialist report by Irish (2016) the greater Cape Cross area was declared to be particularly biodiverse due to the ecotonal nature of the northern and central coastal Namib desert biomes. He considered the broader Cape Cross area to be biogeographically unique. Evidence for its existence stems mostly from the species found on the sandy gravel plain, though not exclusive to this habitat only. If one refers to **Figure 13** one can see how conservation reserves have been recognised within the Dorob National Park most likely based on this ecotone. The accessory works area and the Mile 68 salt pan falls outside those ‘no development’ areas.

#### 5.5.1 Faunal habitats

##### 5.5.1.1 Coastal hummocks

This is a narrow, discontinuous strip of sparsely vegetated, sandy hummock dunes parallel to the beach. It is the habitat with the densest concentration of vegetation in the study area, providing shelter and food for detritivores and the predators that feed on them.

Although it occurs intermittently on long stretches of Namibian coastline, the very narrow width results in a small surface area. This makes the hummock dunes a highly restricted habitat type, meaning that taxa dependent on coastal hummocks may be considered habitat-specific, range-restricted endemic species. It is a highly sensitive habitat for invertebrates and reptiles.

Along the Namibian coast much of this habitat has already been affected by mining, infrastructure, vehicle tracks and tourism, causing cumulative damage that may endanger range-restricted taxa. It is particularly vulnerable to physical destruction caused by uncontrolled vehicle activity and sand harvesting.

Sensitivity: Very sensitive.

Excluding the proposed two bittern pipelines, this habitat should be designated a no-go area. No development should be allowed in the dune hummocks except the bittern pipelines and an access corridor to each pipeline that will allow routine maintenance to be done.

#### **5.5.1.2 Saline pan**

The saline pan habitat at Mile 68 is a shallow depression covered in a crust of gypsum and sand, devoid of vegetation and with surface salt deposits. Towards the northwest is an area of open saline water. It is a highly disturbed habitat with existing salt mines and vehicle tracks.

Saline pans occur along the length of the Namibian coastline and cannot be considered restricted per se. The vulnerability of this habitat lies in the cumulative impact along the coast, caused by salt mining, other developments and indiscriminate 4x4 driving by the public. In addition, the location of the study area in the Dorob National Park confers a high priority conservation status to the environment, even though the current levels of disturbance render a lower than expected sensitivity rating on the saline pan and gravel plain west of the C34.

Two vertebrate species of concern utilise the saline pan. The Chestnut-banded Plover (Near-threatened in Namibia as well as globally) is a highly specialised wader on salt pans and coastal flats, and it nests in stony areas or dry mud along the edges of salt pans. Brown Hyenas (Near Threatened globally and protected in Namibia) regularly cross saline pans from their dens inland to reach food resources on the coast.

Small, hyper-saline brine ponds that could potentially constitute a sub-habitat occur on the saline pan. These ponds were possibly created as a result of previous salt mining and it is surmised that they may be maintained by seawater that washes over the beach and into the saline pan, like the situation at Cape Cross. It is possible that brine shrimp and other hyper-saline adapted invertebrates are sustained in this putative habitat, because it is a similar environment as the brine ponds that were identified at Cape Cross.

It is suggested that the brine ponds within the Mile 68 saline pan be included in the study that is being undertaken at the brine ponds at Cape Cross. The outcomes of that research could inform how important the brine ponds are and what type of ongoing monitoring should take place. The recommended measures should be incorporated into the EMP.

Sensitivity: Least sensitive.

#### **5.5.1.3 Gravel plain**

Most of the surface area of EPL4426 consists of this habitat but only a relatively small area of this habitat type within the envisaged mining licence area is to be affected. The gravel plain is interspersed with washes and with boulders or rock outcrops.

The gravel plain has a substrate of small pebbles, loose gravel and coarse sand. Most of the finer clastic components are deflated by strong winds. In the southern part of the study area the gravel plain habitat is a flat plain interspersed with small, shallow washes and it has a substrate of loose, fine gravel on sand. This part of the gravel plain is heavily disturbed by earth movement and multiple vehicle tracks.

The accessory works area is the only development that will be located on the gravel plain, occupying a relatively small surface area. This, together with the high level of existing disturbance, indicates a habitat of low sensitivity but there are four reasons to treat it as sensitive, especially in view of cumulative impacts along the coast:

- It could be a potential breeding site for Damara Terns breed on gravel plains (see full discussion in section 5.5.2.2).
- The gravel plain is an important habitat for reptiles, providing shelter in the form of a sandy, gravelly substrate as well as stones.
- The presence of lichens on the gravelly substrate of the habitat contributes to the sensitivity rating, although the most sensitive lichen area with the greatest diversity is found outside the mining licence area.
- Invertebrates of conservation concern potentially occur here.

Sensitivity: Sensitive but of low concern, provided that activity remains within the proposed boundaries of the operational and accessory works area.

#### **5.5.1.4 Washes**

Intersecting the gravel plain are many shallow drainage lines that carry surface water after rare rainfall events and may indicate preferential flow paths where groundwater can infiltrate. They contain more vegetation than the surrounding gravel plain or rock outcrops. Perennial plants are present, and some annual species are expected to appear after rain, providing food, shelter and soil stabilisation for detritivores and burrowing animals. The preferential habitat for reptiles including the endangered Dwarf Beaked Snake and Namib Sand Snake is gravel plains and sand dunes with vegetation.

Some of the drainage lines are larger and form wide washes that originate far outside the study area. These washes will be affected by remote rainfall events. They may have some subsurface water that sustains the perennial plants present and they provide movement corridors and sustenance for larger mammals.

Sensitivity: Sensitive

#### **5.5.1.5 Rock outcrops**

This habitat occurs in the north and northeast of the envisaged ML area and consists of low, undulating hillocks and large boulder outcrops and ridges of dolerite or quartzite rock that stand as discontinuous, isolated islands within the gravel plain. Substrate contains rocks that vary in size from pebbles to large boulders.

Rocky habitat types in the Central Namib provide ample shelter to reptiles as well as invertebrates. Lichens as a primary food source play an important role in the biodiversity of the Namib. Vegetation cover is very sparse, but lichen cover is abundant and diverse, which is the main contributor to the sensitivity rating of this habitat. In addition, a range-restricted endemic gecko, *Pachydactylus maraisi*, has been recorded only in low, undulating hills with boulders.

The accessory works area, although small in surface area, will be located where some rock outcrops occur and these individual outcrops should be avoided.

Sensitivity: Very sensitive.

### **5.5.2 Faunal taxa**

For the purposes of this report only three vertebrate taxa, namely mammals, birds and reptiles, were considered. No evidence was found that amphibians were previously recorded in or near the study area, and it is considered unlikely that any amphibians are compatible with the habitats here.

The taxa that were investigated are listed in the fauna specialist report. Species were included in the lists if they:

- are expected to occur or have been previously recorded in the study area, and
- are compatible with the habitats in the study area

The Namib lowlands is one of three landscapes in the country containing most endemics across all taxa, with reptile endemism particularly high (21-24 species). The diversity of substrates, such as sandy and gravel plains, rocky outcrops and hills contributes to this richness of endemism.

Species that are range-restricted endemics, have Threatened IUCN status, or are legally protected in Namibia, are potentially of concern.

#### **5.5.2.1 Mammals**

A total of 14 mammal species have been recorded. Five endemic mammals could occur in the study area, namely the Namibian Wing-gland Bat, Namibian Pygmy Mouse, Namib Brush-tailed Gerbil, Solitary Whistling Rat and Namib Round-eared Elephant Shrew.

The near-threatened Brown Hyena is a mammal of conservation concern. Along with birds, jackals and the wind, it plays an important role in the ocean to land transfer of nutrients to arid inland ecosystems.

The coast supports the highest concentration of Brown Hyenas in Namibia, where they scavenge on seals. One seal colony can support more than four clans and in addition, dead seals that wash up along the coast away from colonies are an important source of food for this species. Coastal Brown Hyena clans have 500 km<sup>2</sup> home ranges and have been recorded carrying carcasses up to 40 km inland from Möwe Bay.

The movement patterns of hyenas could potentially be severely affected by the project's operational activities. The crystallisers and increased human presence and activity could disrupt their access routes across the saline pan, decreasing their foraging opportunities on the coast. Increased vehicle traffic during the project's operational phase will increase the risk of collisions and may disturb their feeding patterns. Most importantly, an unmitigated above-ground brine pipeline could cut them off from their main food source and force them to use narrow corridors to the north of Cape Cross and south of Mile 68. A mitigated brine pipeline



on the ground is unlikely to restrict hyena movement, provided it is no higher than the planned 25 cm.

#### 5.5.2.2 *Birds*

When designating a study area for avifaunal data searches, a much wider margin around the project site was selected than for other taxa because it ensures more comprehensive data coverage. Birds range widely and they utilise ephemeral or occasional resources in areas that are far from their central ranges, much more so than other taxa.

The SABAP2 pentads that were examined for this study include Cape Cross to the north. Although Mile 68 does not have the nesting and feeding resources (platforms, lagoons and wetland vegetation) that Cape Cross has, the same conservation concerns are valid here because of the mobility of birds, but most importantly, because of the potential impact that brine extraction could have on the lagoon system at Cape Cross.

The importance of the study area for birds, specifically the nearby Cape Cross wetland, cannot be overstated. Rüppell's Korhaan and Damara Tern are near endemic to Namibia with more than 75% of their populations occurring here. Only 2% of the global population of Damara Terns breed outside Namibia. Eleven more species are endemic to southern Africa. 18 of the 62 species that occur in the study area are threatened in Namibia and 12 of these are also globally threatened. **Table 4** lists the number of bird species with the various conversation status.

There is a Damara Tern nesting colony very close to the northern boundary of the project site, between Mile 68 and Mile 72. This colony is considered so important that it resulted in the specific prohibition of prospecting and mining in the area in terms of the National Policy on Prospecting and Mining in Protected areas.

Damara Tern breeding colonies are extremely sensitive to human disturbance, specifically to vehicles. At several other Damara Tern breeding sites (Caution Reef and Horses Graves in Namibia and Cape Agulhas in South Africa), a reduction in disturbance from vehicles through cable barriers and interpretive signs resulted in a significant increase in breeding populations and fledgling success.

**Table 4. Conservation status of bird species**

CONSERVATION STATUS	IUCN (International Union for Conservation of Nature)	NAMIBIA
Near-threatened	7	7
Vulnerable	2	6
Endangered	3	3
Critically Endangered	0	2

#### 5.5.2.3 *Reptiles*

Twelve of the 16 reptile species potentially occurring in the study area (i.e. 75%) are classified as endemic or near-endemic. Of these twelve, four species (25%) are also globally endangered: Dwarf Beaked Snake, Namib Sand Snake, Palmato Gecko and Common Namib Day Gecko. Marais' Gecko, a range-restricted endemic, has been recorded only twice ever: at

Cape Cross (only 15 km north from the project site) and Wlotzkasbaken (65 km from the project site south). Both times it was found in boulder outcrops, which contributes to the sensitivity rating of the rock outcrop habitat.

The gravel plain, washes and rock outcrops are preferred habitat types for most of the reptiles recorded in the area.

## 5.6 MARINE ECOLOGY

The “Marine Ecology Specialist Statement: Environmental Impact Assessment for Salt Mining at Mile 68 within EPL 4426, Erongo Region” (Pulfrich, A. 2020, for Gecko Salt) provided the information for this section. The full study can be found in **APPENDIX E**.

Marine ecosystems along the coast of the study area comprise a limited range of habitats that include:

- sandy intertidal and subtidal substrates,
- intertidal rocky shores and subtidal reefs, and
- the water body.

The benthic communities within these habitats are generally ubiquitous throughout the southern African West Coast region, being particular only to substratum type, wave exposure and/or depth zone. They consist of many hundreds of species, often displaying considerable temporal and spatial variability. The biological communities ‘typical’ of each of these habitats are described briefly below, focussing both on dominant, commercially important and conspicuous species, as well as potentially threatened or sensitive species, which may be affected by the proposed project.

### 5.6.1 Sandy Substrate Habitats and Biota

The benthic biota of soft bottom substrates constitutes invertebrates that live on (epifauna), or burrow within (infauna), the sediments, and are generally divided into megafauna (animals >10 mm), macrofauna (>1 mm) and meiofauna (<1 mm).

#### 5.6.1.1 Intertidal Sandy Beaches

Sandy beaches are one of the most dynamic coastal environments. The composition of their faunal communities is largely dependent on the interaction of wave energy, beach slope and sand particle size, which is called beach morphodynamics.

In the area between Walvis Bay and the Kunene River, beaches make up 44% of the coastline, with the remainder comprising mixed shores (~40%) and rocky coastline (~16%).

Most beaches on the central Namibian coastline are open ocean beaches receiving continuous wave action and are classified as ‘exposed’ to ‘very exposed’ The beaches tend to be characterised by well-developed berms, and are well-drained and oxygenated.

The **supralittoral zone** is situated above the high-water spring (HWS) tide level, and receives water input only from large waves at spring high tides or through sea spray. The supralittoral is characterised by a mixture of air breathing terrestrial and semi-terrestrial fauna, often associated with and feeding on algal wrack deposited near or on the driftline. Terrestrial species include a diverse array of beetles and arachnids and some oligochaetes, while semi-

terrestrial fauna include the oniscid isopod *Tylos granulatus*, the talitrid amphipods *Africorchestia quadrispinosa* and *Talorchestia* sp., and the gamarrid amphipod *Bathyporeia* sp.

The intertidal zone, also termed the **mid-littoral zone**, has a vertical range of about 2 m. This mid-shore region is characterised by the cirrolanid isopods *Pontogeloides latipes*, *Eurydice (longicornis=) kensleyi*, and *Excirrolana natalensis*, the deposit-feeding polychaetes *Scolelepis squamata* and *Lumbrineis* sp., amphipods of the family Phoxocephalidae<sup>1</sup> and tanaids<sup>2</sup>. In some areas, juvenile and adult sand mussels *Donax serra* (Bivalvia, Mollusca) may also be present in considerable numbers. Donn & Cockcroft reported that at Cape Cross this bivalve contributed 75% to the total macrofaunal biomass.

The **inner turbulent zone** extends from the low water spring tide level to about -2 m depth and is characterised by highly motile species. The benthic-planktic mysid *Gastrosaccus namibensis*, and Nemertean worms are typical of this zone.

The **transition zone** spans approximately 2-3 m depth and marks the area to which the break point might move during storms. Extreme turbulence is experienced in this zone, and as a consequence this zone typically harbours the lowest diversity on sandy beaches

Most of the macrofaunal species recorded from beaches in central Namibia are ubiquitous throughout the biogeographic province, and no rare or endangered species are known. The invertebrate communities are similar to those recorded from beaches in southern Namibia. These beaches are all characterised by a relatively depauperate invertebrate fauna, both with regard to species diversity and biomass, which is typical of high-energy west coast beaches.

#### **5.6.1.2 Subtidal sandy habitats**

With the exception of numerous studies on the benthic fauna of Walvis Bay lagoon, there is a noticeable scarcity of published information on the subtidal soft sediment biota along the rest of the central Namibian coast. In general, almost no scientific work on subtidal benthic communities has been done in the vicinity of the study area, or within the general region and no further information could be obtained.

#### **5.6.2 Rocky habitats and biota**

In common with most semi-exposed to exposed coastlines on the southern African west coast, the rocky shores that occur in the region are strongly influenced by sediments. Typically, the intertidal area of rocky shores can be divided into different zones according to height on the shore. Each zone is distinguishable by its different biological communities, which is largely a result of the different exposure times to air.

The rocky intertidal shores at Cape Cross are, however, not expected to show the typical intertidal zonation as these would be heavily impacted by the seals of the Cape Cross colony. Not only would the seals result in severe trampling of high- and mid-shore biota, but the guano run-off would be expected to have significant effects on the community structure of

---

<sup>1</sup> Potentially misidentified as *Pseudharpinia excavata*

<sup>2</sup> Potentially misidentified as Sub Order Asellata. Asellata are fresh water crustaceans with no marine representatives.

the shore. Studies conducted in other parts of the world have shown that high intensity [human] trampling can result in the removal of most of the rocky intertidal assemblages, although the effects are dependent on the community present.

As in the case of sandy beach communities, most of the biota recorded from rocky shores in central Namibia are ubiquitous throughout the biogeographic province, and no rare or endangered species are known.

### **5.6.3 Pelagic communities**

#### **5.6.3.1 Plankton**

Plankton is particularly abundant in the shelf waters off Namibia, being associated with the upwelling characteristic of the area. Plankton range from single-celled bacteria to jellyfish of 2-m diameter, and include bacterio-plankton, phytoplankton, zooplankton, and ichthyoplankton.

A study on phytoplankton in the surf zone off two beaches in the Walvis Bay and Cape Cross area showed relatively low primary production values of only 10-20 mg C/m<sup>2</sup>/day compared to those from oceanic waters (2 g C/m<sup>2</sup>/day). In the surf zone, diatoms and dinoflagellates are nearly equally important members of the phytoplankton, and some silicoflagellates are also present. Characteristic species belong to the genus *Gymnodinium*, *Peridinium*, *Navicula*, and *Thalassiosira*.

#### **5.6.3.2 Fish**

The surf zone and outer turbulent zone habitats of sandy beaches are considered to be important nursery habitats for marine fishes. However, the composition and abundance of the individual assemblages seem to be heavily dependent on wave exposure.

Only five species occur off exposed and very exposed beaches, these being southern mullet/harders (*Liza richardsonii*), white stumpnose (*Rhabdosargus globiceps*), False Bay klipfish (*Clinus latipennis*), Super klipvis (*C. superciliosus*) and galjoen (*Dichistius capensis*). Linefish species common off the central Namibian coastline include snoek (*Thyrsites atun*), silver kob (*Argyrosomus inodorus*), West Coast Steenbras (*Lithognathus aureti*), blacktail (*Diplodus sargus*), white stumpnose, Hottentot (*Pachymetopon blochii*) and galjoen (*Dichistius capensis*). From the surf zone off Langstrand beach near Walvis Bay, McLachlan recorded galjoen, West Coast steenbras, flathead mullet (*Mugil cephalus*), and southern mullet. Off Cape Cross only two species were recorded, these being sandsharks (*Rhinobatos annulatus*) and West Coast steenbras.

The Namibian pelagic stock is currently considered to be in a critical condition due to a combination of over-fishing and unfavourable environmental conditions as a result of Benguela Niños.

#### **5.6.3.3 Turtles**

Five of the eight species of turtle worldwide occur off Namibia. Turtles that are occasionally sighted off central Namibia, include the Leatherback Turtle (*Dermochelys coriacea*). Observations of Green (*Chelonia mydas*), Loggerhead (*Caretta caretta*), Hawksbill (*Eretmochelys imbricata*) and Olive Ridley (*Lepidochelys olivacea*) turtles in the area are rare.

The South Atlantic population of leatherback turtles is the largest in the world and Namibia is gaining recognition as a feeding area for leatherback turtles. Although they tend to avoid nearshore areas, Leatherbacks may be encountered in the area around Walvis Bay between October and April when prevailing north wind conditions result in elevated seawater temperatures.

Leatherback Turtles are listed as “Critically Endangered” worldwide by the IUCN and are in the highest categories in terms of need for conservation in CITES (Convention on International Trade in Endangered Species), and CMS (Convention on Migratory Species). Although Namibia is not a signatory of CMS, Namibia has endorsed and signed a CMS International Memorandum of Understanding specific to the conservation of marine turtles. Namibia is thus committed to conserve these species at an international level.

#### **5.6.3.4 Marine mammals**

Marine mammals occurring off the Namibian coastline include cetaceans (whales and dolphins) and seals. The cetacean fauna of the Namibian coast comprises between 22 and 31 species. The diversity is comparatively high, reflecting the cool inshore waters of the Benguela Upwelling system and the occurrence of warmer oceanic water offshore of this.

The endemic Heaviside’s Dolphin *Cephalorhynchus heavisidii* is found in the extreme nearshore region of the project area. Although considered numerous in South African waters, Heaviside’s dolphins are vulnerable due to their use of human-impacted coastal habitats, the small home ranges of individuals and the restricted geographic range of the species.

The bottlenose dolphin (*Tursiops truncatus*) is found in the extreme nearshore region between Lüderitz and Cape Cross, as well as offshore of the 200 m isobath along the Namibian coastline. There has been a reduction in the population which is a serious concern and suggests that the species is under pressure in at least part of its range.

Of the southern hemisphere migratory whale species, humpback whales (*Megaptera novaeangliae*), and southern right whales (*Eubalaena australis*) have become frequent visitors to Walvis Bay during the austral winter (June to September) (Roux *et al.* 2001; Leeney in prep) and may occur in coastal waters off Mile 68.

Of the migratory cetaceans, the blue whale is listed as “Critically Endangered” and Sei and Fin whales are listed as “Endangered”. Southern Right and Humpback whales are listed as “Least Concern” in the IUCN Red Data book. All whales and dolphins are given absolute protection under the Namibian Law.

The Cape Fur Seal (*Arctocephalus pusillus pusillus*) is common along the Namibian coastline, occurring at numerous breeding sites on the mainland and on nearshore islands and reefs. Cape Cross is currently the largest breeding site in Namibia and about 51,000 pups are born annually.

#### 5.6.4 Potentially threatened marine habitats

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. These specific areas include:

- The natural intertidal and shallow subtidal beach environments adjacent to the discharge site; and
- Recreational surf-angling.

### 5.7 KEY CONSERVATION AREAS

The coastline of Namibia is part of a continuum of protected areas that stretches from Southern Angola into Namaqualand in South Africa, namely the Skeleton Coast National Park, the Dorob National Park, the Namib-Naukluft National Park and the Sperrgebiet National Park.

The project falls within Dorob National Park (**Figure 11**). While tourism, sports and recreational activities are allowed in non-sensitive areas, the remainder of the park has been divided into zones, which include Damara Tern breeding sites, gravel plains, the Kuiseb Delta, Sandwich Harbour, Swakop River, Tsumas Delta, Walvis Bay Lagoon, birding areas and lichen fields. Among the areas excluded from the park are the municipal areas of Swakopmund, Walvis Bay and Hentiesbaai, the peri-urban area of Wlotzkasbaken, the Cape Cross Seal Reserve, and several farms in the Swakop River. The marine component of the park includes the Walvis Bay Lagoon Ramsar sites. **Figure 12** renders a map, extracted from the National Policy on Prospecting and Mining in Protected Areas (2018) which indicates that mining and prospecting may take place within the Dorob National Park.

The Cape Cross Seal Reserve was proclaimed in 1968 to protect the largest of the 23 breeding colonies of Cape fur seals along the southern African West Coast. During the November/December breeding season as many as 210,000 adult seals may gather at Cape Cross at one time. The seal reserve is located ~7 km to the north of the project area. A small lichen reserve exists to the north of the Cape Cross Seal Reserve, with a further depauperate lichen area located on the gravel plains around the Mile 68 saltpan. The exposed offshore reefs at the Cape Cross promontory (northernmost point of reserve), which serve as seabird nesting areas are also protected.

Damara terns nest in 13 different loose colonies along the coast of the Dorob National Park, with those breeding sites within the broader project area located at Mile 100, White Stones, Cape Cross and surrounds, the Mile 72 saltworks, the Omaruru Delta and Henties Bay. All breeding colonies are formally protected under the auspices of the National Parks.

In the spatial marine biodiversity assessment undertaken for Namibia, a number of offshore and coastal areas were identified as being of high priority for place-based conservation measures. To this end, Ecologically or Biologically Significant Areas (EBSA) spanning the coastline between Angola and South Africa were proposed and inscribed under the

Convention of Biological Diversity (**Figure 13**). The principal objective of the EBSAs is identification of features of higher ecological value that may require enhanced conservation and management measures. No specific management actions have been formulated for the EBSAs at this stage.

The project area falls within the Namib Flyway EBSA, which is a highly productive area in the Benguela system that attracts large numbers of sea- and shorebirds, marine mammals, sea turtles and other fauna (**Figure 13**). It contains two marine Ramsar sites (Walvis Bay and Sandwich Harbour), six terrestrial Important Bird Areas (IBA), two proposed marine IBAs, and key spawning and nursery areas for some fish species. The Flyway EBSA is highly relevant in terms of its importance for life-history stages of species, threatened, endangered or declining species and/or habitats, and biological productivity.

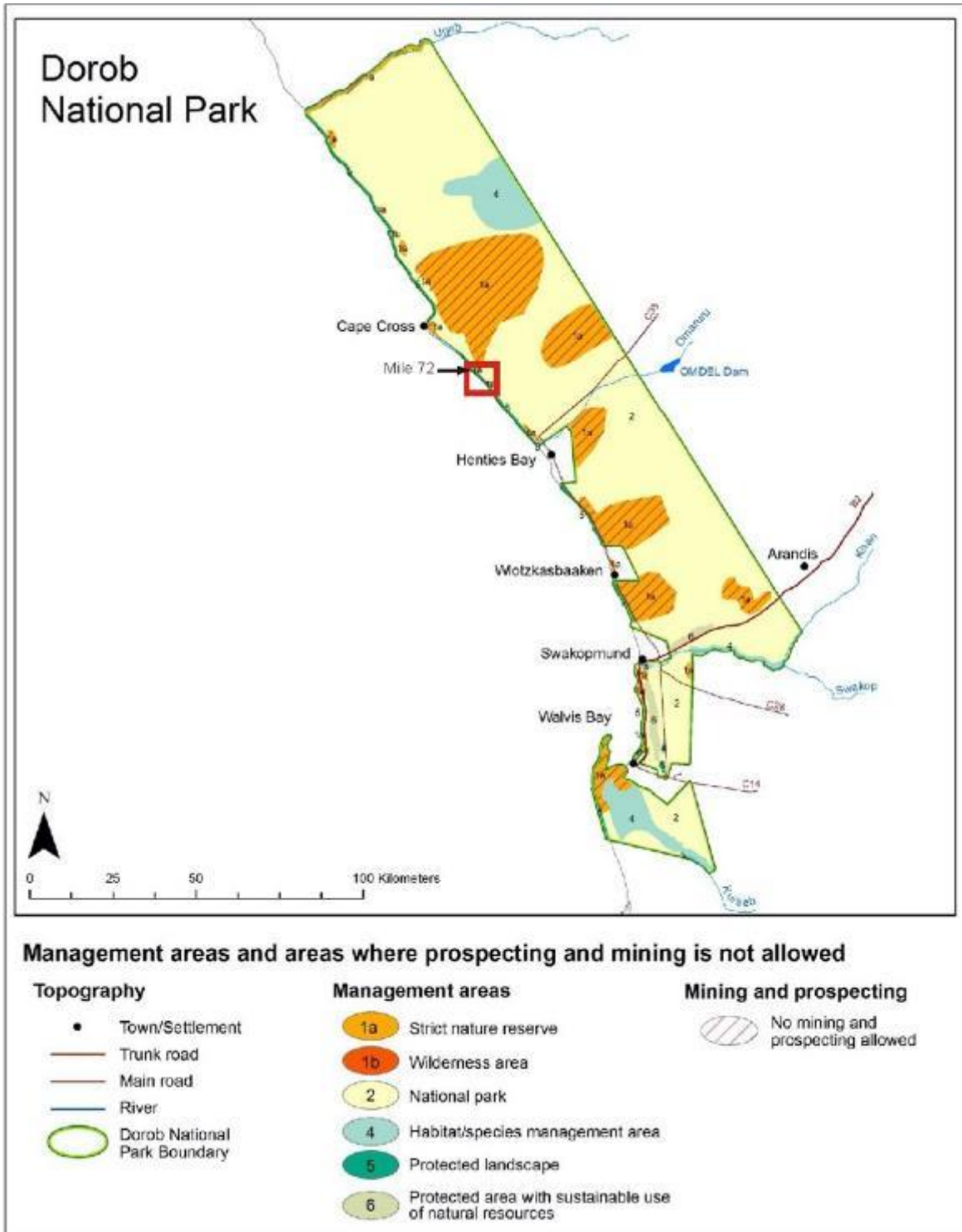


Figure 11. The project area (red rectangle (not to scale)) in relation to the Dorob National Park and nearby strict nature reserves (Orange).



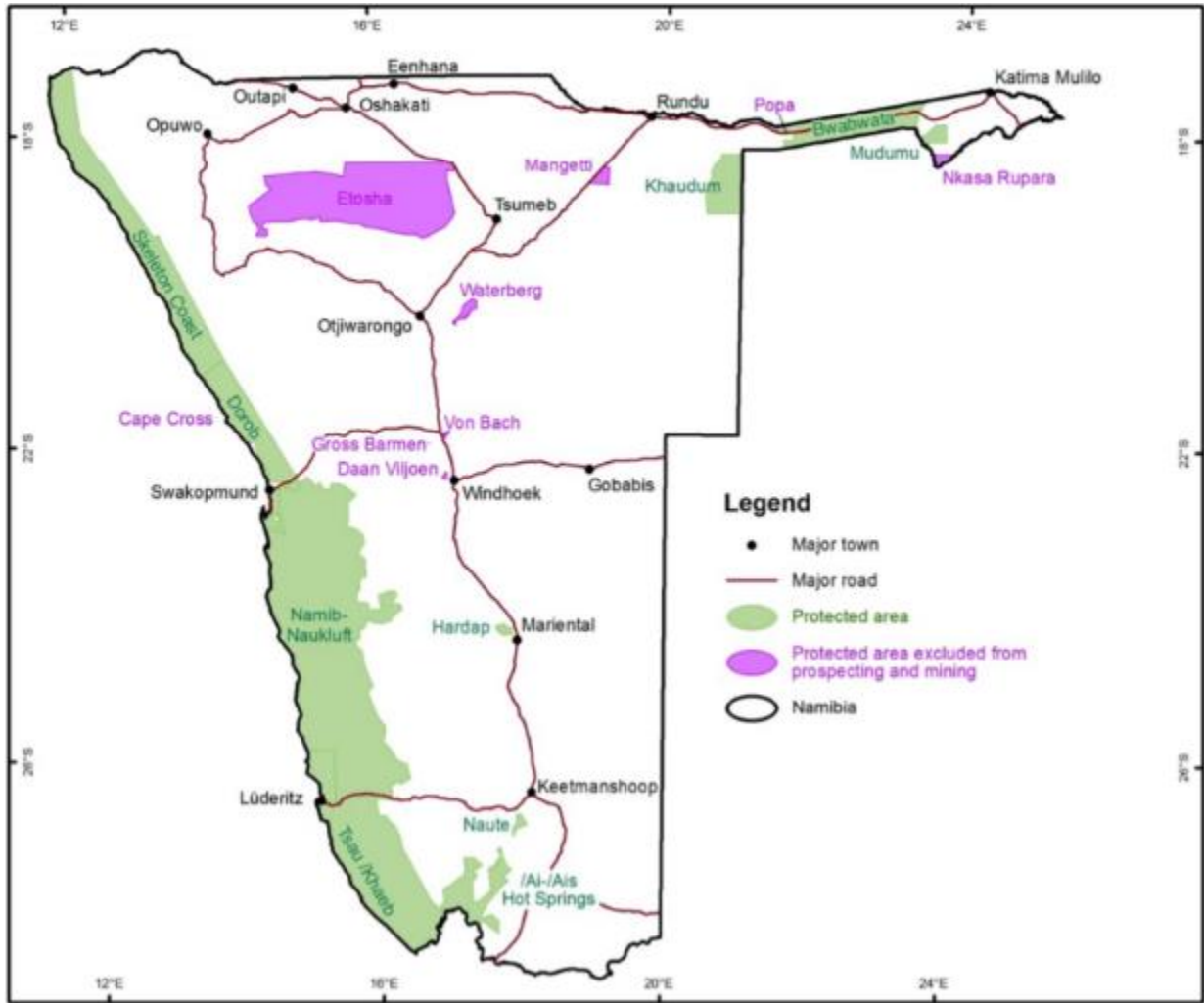


Figure 12. Map of protected areas that exclude prospecting and mining activities

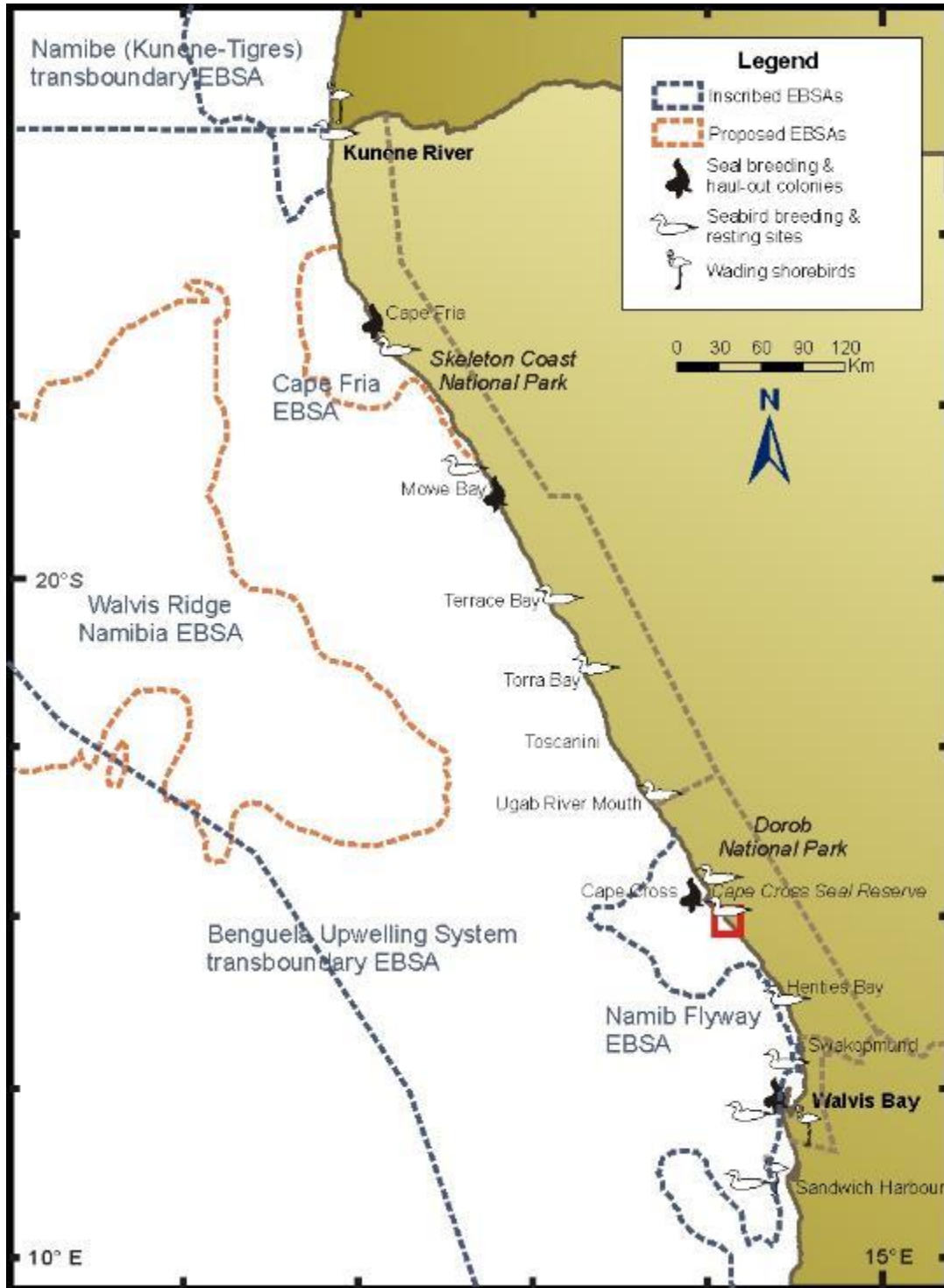


Figure 13. The project area (red rectangle (not to scale)) in relation to Ecologically or Biologically Significant Areas (EBSAs) and coastal seal and seabird colonies.

## 5.8 ARCHAEOLOGY

This section was sourced from “Mile 68, Erongo Region: Archaeological assessment of proposed accessory works site” (Kinahan, J. 2019, for Gecko Salt). The full study can be found in **APPENDIX E**.

A series of detailed studies over several decades has identified large concentrations of archaeological sites along the Namib Desert coast and adjacent interior. These sites contain unique evidence of human settlement in the area mainly dating to within the last 2000 years. The section of the coastline where the proposed Mile 68 development is located has not been surveyed in detail.

The proposed accessory works area measures approximately 0.3km<sup>2</sup> and lies on a gentle south-westerly slope between extensive rocky outcrops and a strip of coastal salt pans. The north-western half of the area is bisected by a number of deeply weathered dolerite dykes with decomposed grit and quartz gravel. Approximately 15% of the area is heavily disturbed as a result of previous and current earthmoving operations, and most of the remaining area is scarred by vehicle tracks.

Archaeological surveys in similar physical settings at Cape Cross and at Wlotskasbaken revealed low density stone artefact waste and marine shell middens associated with sheltered areas between dolerite outcrops. Some of these sites were also associated with the remains of small stone windbreaks, storage facilities and suspected human burials. The absence of reliable water on this section of the coast seems to have precluded sustained occupation and the sites probably relate to short expeditions from inland to exploit marine resources.

A systematic foot survey of the proposed accessory works area revealed a single archaeological site (Site 371) close to the north-western margin of the area in an area of low-lying ground on the leeward side of a weathered dolerite dyke. The location of the site at S21.894 E14.107 is shown in **Figure 14**.



**Figure 14. The position of Site 371 in relation to the boundaries of the proposed accessory works area.**

The site consists of seven dispersed stone features probably representing windbreaks and storage facilities covering an area of approximately 300m<sup>2</sup>. There were no artefacts or other archaeological remains visible on the surface. The stone features are similar to those found in the vicinity of Cape Cross and Wlotzkasbaken.

Although the stone features appear to be undisturbed, the site lies on the edge of a large excavated pit with associated spoil heaps. The site is also crossed by a disused vehicle track. Although undisturbed, Site 371 is considered to have negligible research value. The site does not present an impediment to the proposed accessory works development. However, if the site does not lie unavoidably in the path of the proposed activities it should be demarcated and left undisturbed.

Although the disturbance and/or destruction of archaeological sites is permanent and irreversible, this site is of negligible research value and considered of low significance.

## **5.9 ECONOMIC & SOCIAL ENVIRONMENT**

Gecko Salt commissioned a socio-economic baseline and assessment to be carried out by Ashby and Associates (Ashby, 2015) for the sister project at the Cape Cross salt pan within their mining licence 210. The following sub-sections are extractions from that baseline report.

### **5.9.1 The Cape Cross Area**

The Mile 68 salt pan is situated about 6km south of the Mile 72 fishing spot, the Cape Cross salt pan and the start of the Cape Cross Seal Reserve. The Cape Cross salt pan straddles the boundary between the Dorob National Park and the Cape Cross Seal Reserve. Cape Cross is a

popular tourist destination for day visitors from Swakopmund and Henties Bay and visitors can overnight at the Cape Cross Lodge and Campsite.

The reserve offers the world's largest breeding colony of Cape Fur Seals with up to 210,000 seals present during the breeding season in November and December. The seasonal harvesting of pups and adult males is set by an annual quota system issued by the Namibian Ministry of Fisheries and Marine Resources and provides employment at the factory in Henties Bay.

In 2013, the Ministry of Environment and Tourism recorded 44,397 visitors at their Cape Cross office of whom 73% were from outside the Southern Africa Development Community and only 13% were Namibian. They travelled in over 16,000 vehicles and paid over N\$3 million in park entrance fees to government.

There are many mining license holders in the Cape Cross salt pan with mining licenses, mining claims and exploration licenses. Mining Licenses are mainly issued for salt and guano production but one is for base and rare metals.

## **5.9.2 Henties Bay**

Henties Bay is the nearest town to the Mile 68 salt pan and lies 40km south of the pan on the north-south coastal Main Road MR44 (also referred to as the C34 road). It is situated on the coast, at the mouth of the ephemeral Omaruru River and is surrounded by the Dorob National Park. The town grew up as a holiday destination for people seeking the outdoor life – the Dorob Park offers extensive beaches, many prime fishing spots and 4x4 routes to the Messum and Doros Craters, Brandberg West, the Ugab and the Omaruru Rivers, and to Welwitschia. The busiest periods are linked to the South African holidays of June/July, the European holidays in July/August and the local/South African holiday season in December/January.

Government facilities in the town are the municipality, the clinic, the police station, the Ministry of Fisheries and Marine Resources' permit office and the police station.

### **5.9.2.1 Population Dynamics**

Henties Bay has three distinct areas – Henties Bay town (formal low density housing areas of middle-high income), the high density extensions of Omdel and its informal settlement area called !Oas.

In 2015, the Municipality estimated a permanent population of approximately 12,000 of which about 6,500 live in Omdel where the Municipality provides them with basic services. Approximately 5,500 people are living permanently in the formal town area, excluding holiday makers. The Municipality supplies 7,690 households with water, of which 2,100 are in the formal town and 5,100 in Omdel. Many houses in the formal area are owned by non-permanent residents who come to the town during holiday periods when the population can swell to an estimated 21,000 people.

The population has grown considerably in the last three years as a survey conducted by Urban Dynamics during 2012/13 in preparation for the Henties Bay Integrated Urban Spatial Development Framework (IUSDF), estimated a permanent population of 7,461 living in 3,714

households, with an average of about 2.3 people per household. If the municipality population estimates for 2015 are correct, the IUSDF has greatly underestimated a population growth rate of 3.36% which they predicted would result in an estimated population of 9,265 by 2017 and 14,000 people by 2033.

The survey found that approximately 25% of the residents in the formal and informal areas moved to Henties Bay after 2008, many pulled by employment opportunities in the middle-high income housing construction sector. The ratio of male-female was fairly even and the percentage of people in the working age group of 15-59 years was 60% .

Afrikaans is the most prominent language spoken in the Henties Bay area comprising 85% of the population, followed by Damara/Nama then Oshiwambo.

### **5.9.2.2 Housing**

As with all other towns in Namibia, housing development over the past two decades focused on providing middle and high income housing and thus Henties Bay extensions have a projected over-supply of erven up to 2033, with approximately 1,500 developed erven and 1,800 which are undeveloped/not yet serviced.

In contrast, affordable housing for low income households has not kept pace with demand. In Omdel, most of the 900 erven have an additional household living in a backyard construction. The survey estimated that over 800 households in Omdel currently need an erf to live on. In addition to the three formal extensions of Omdel, approximately 17% of housing is in the informal areas of !Oas where approximately 640 households lived at the time of the survey.

### **5.9.2.3 Education**

The 2012/13 Urban Dynamics survey of over 4,000 residents, recorded that an estimated 15% had no formal education while 50% had already completed Grade 10. Residents living in the low-density areas of Henties Bay attained the highest levels of education with 64% having completed at least Grade 12 or attaining some level of tertiary education.

The only school is the Kamwandi Combined School whose learner numbers are growing annually at an increasing rate. In October 2015 it had 988 learners from Grade 0 to Grade 10 and by February 2017, 1,120 learners were enrolled. The school is in great need of more classrooms as eleven classes have to run in the afternoon which is a severe disadvantage to children in Grade 1, 2 and 3 who are tired by then. Twenty-five classes of the 31 class groups are over-sized with more than 40 learners per class. Their priority needs are 12 new classrooms, a boundary wall, ablution blocks for girls and boys, a bus shelter and additional transport. Suitable and affordable accommodation for teachers is also a challenge. It is an English medium school and offers Afrikaans and Khoi Khoi as second languages. There is one private pre-primary school.

The University of Namibia (UNAM) Sam Nujoma Campus engages between 400-500 students and lecturers on its 100ha site to the north of the town. The Centre is a full-fledged multidisciplinary research centre with the mandate to promote research and development

activities in the field of Marine Science and Coastal Resources. The Department of Fisheries and Aquatic Sciences is an Academic Department within the Faculty of Agriculture and Natural Resources of the University and offers a four-year degree programme and a research based postgraduate programme.

The National Youth Service, a government youth programme, offers “civic training” at their Henties Bay facility for approximately 500 youth between the ages of 16 – 35 years. The youth get free food, free accommodation, uniforms and N\$350 a month in allowances. They manage a large vegetable garden and are allowed to visit the town centre once a month.

#### **5.9.2.4 Health**

Henties Bay has a number of private doctors, a frail care centre, a medical centre, a clinic and pharmacies. The Henties Bay government clinic is run by two registered nurses and two enrolled nurses; the government doctor rarely visits. Very sick patients are referred to the hospital in Swakopmund but there is no government ambulance available, so people have to arrange their own private transport. Lifelink Emergency Rescue Services offers a private sector paramedic service. Common diseases recorded to date in 2015 at the clinic were acute respiratory infections, muscular skeletal & diseases, skin diseases and diarrhoea which is likely to be poor hygiene related.

#### **5.9.2.5 The Local Economy**

The Henties Bay central business district is well structured, compact and easily accessible from most of the existing residential neighbourhoods. The Municipality has 160 registered businesses of which the majority are in the formal retail sector, 12% are industrial and 7% are office-based. Industries include a fish factory, a seal factory, garages, brick-making, wood-working using wood from the Congo and a 10 machine sewing enterprise. In the agricultural sector there is a chicken hatchery. The 2012/13 survey found that most of the informal businesses sold food and alcohol while 14% offered specialised activities such as vehicle repairs, hair braiding and barber shops.

Over 60 local fishermen are members of the Hanganeni Artisanal Fishing Association which gives them access to the Association’s vehicle to access fishing points further up and down the coast. Fishermen are required to have valid permits to fish barbel, snoek, shark, kabeljou, steenbras, blacktail, galeon and rock lobster, some of which are seasonal. During the six days prior to interview, members caught kabeljou valued at over N\$8,000 which contributes to the salaries of its 13 employees.

The 2012/13 survey found that in both the formal and informal areas of Omdel, the majority of workers were unqualified and the unemployment rate was 18% in Omdel (formal) and 23% in !Oas. The most common occupations were in the service, retail and trade industries, with domestic work being important in !Oas and Omdel. Nearly half of the residents of the survey (46%) were classified as economically inactive – being pensioners, homemakers and students.

The average earning capacity was relatively low with just over half (54%) of all residents in the whole town earning in a range between N\$600 to N\$6,000 per month. Almost half the households in !Oas earned less than N\$1,000 per month, compared to a quarter of households in Omdel. In the formal Henties Bay area, nearly three quarters of households

earned more than N\$6,000/month. When household consumption patterns were analysed for the whole town, approximately 60% of households had low economic power (N\$300 – N\$4000/month) while only 12% of households had over N\$10,481 to spend monthly.

The low spending power of the majority of households influences the type of housing they can afford to buy and the ability of the town to support local economic activities.

#### **5.9.2.6 The Town's Future Development Framework**

Henties Bay's IUSDF recommended that the MR44 is shifted eastwards to allow for residential growth on the seaward side while industrial development supported by smallholdings will expand on the eastern side. This road construction has recently been completed and includes a by-pass for Henties Bay. In addition to the current undeveloped erven, the IUSDF plans for the development of a further 1,473 service erven which will create over 2,000 housing opportunities by 2033.

### **5.9.3 The Economics of Salt**

#### **5.9.3.1 Global Overview**

Salt is a large volume, low priced bulk commodity that is produced and traded internationally. In 2019, global salt production is estimated to have been 293Mt produced by over 110 countries, with China, the USA and India dominating production. Approximately 40% of the salt is produced by evaporating seawater or inland brines while 34% is brine extracted from solution mining; just over a quarter of global production is from the mining of rock salt.

Marketable salt is derived from both brine and rock salt mining, but these techniques require large amounts of energy in order to recrystallize the salt.

The use of salt is dominated by the chemical production industry which accounts for about 60% of global demand. Salt is converted mainly into chlorine, caustic soda (sodium hydroxide) and soda ash (sodium carbonate) which are key basic inorganic chemicals for the chemical industry. The food and food processing industry accounts for about 20% and this includes meat processing, canning, other food processing, baking and dairy products. The remaining 20% of salt demand is for road de-icing, water treatment, tanning, animal feed, production of cooling brines and many other, smaller applications.

Salt production is very responsive to demand caused by winter weather conditions as de-icing salt accounts for up to 43% of the consumption in the USA and up to 30% in Europe. The demand for salt is forecast to rise by about 3% per year, particularly in the chemical sector, with the main growth in China and India.

#### **5.9.3.2 Salt Production in Namibia**

Currently, salt production in Namibia is dominated by Walvis Bay Salt Holdings which recently completed expansion to produce approximately 1Mt/annum through an additional seawater intake and feeder pipe and additional ponds, resulting in a total footprint of 4,500ha.1million tons of salt per year. This amounts to about 88% of the national production while the Salt Company of Swakopmund produced around 120,000t in 2018.



Salt production at Walvis Bay began in 1964 and has grown to be the largest solar evaporation salt facility in sub-Saharan Africa. Salt & Chemicals produces the raw salt while its sister company Walvis Bay Salt Refiners (WBSR) further processes and markets the final product through Namport. Its biggest market is South Africa, with growth in demand from Nigeria and some other West African countries. With the increasing demand for salt, Salt and Chemicals is expanding production.

The Ekandjo Salt Refinery, a N\$50 million joint venture with WBSR and empowerment partners EVI Mining and EHI Investments, can produce up to 60,000t of salt per year and it created 30 new jobs in 2011.

Gecko has been operating a salt processing plant at Cape Cross within Mining Licence 11 since August 2015. Mining licence 11 is held by the Swakopmund Salt Company and Gecko has a contract to mine salt there.

This current project at Mile 68 will supplement the salt project that Gecko is developing at Cape Cross salt pan within its ML210 area.

## 5.10 TRAFFIC SAFETY

The source of this section is the “Traffic Safety Audit for the EIA for the Mile 68 Salt Project” (Lithon Project Consultants, 2019, for Gecko Salt). The full study can be found in **APPENDIX E**.

### 5.10.1 Safety Concerns on Salt Roads

The absence of a permanent surfacing precludes the use of road markings. The lack of road markings are typically indicated using the ‘W339 GENERAL WARNING’ with a sub plate ‘SALT ROAD NO ROAD MARKINGS’.

The surface of the salt road becomes very slippery in wet conditions.

The most critical information that is conveyed by road markings is no passing zones. In their absence, road sign R214 (NO PASSING) is used.

### 5.10.2 Cross Section: Main Road C34/D2301 at Mile 68

The cross section on the salt road north of the C34/D2301/C35 junction is narrower due to lower traffic. The side slopes, which are part of the recovery area/clear zone, are generally flat and clear of any obstructions and have a safe clear zone.

### 5.10.3 Horizontal and Vertical Alignment

The topography at Mile 68 is flat and compliance with minimum design standards for both horizontal and vertical alignment along the road.

### 5.10.4 Existing T-junction

The existing intersection at Mile 68 is not up to standard and not suitable for haulage trucks turning onto and off the coastal road.

#### **5.10.5 Transport operations variances**

The product haulage rate will remain within the limits that were assessed for the Cape Cross project and no cumulative traffic will emanate from the Mile 68 site.

## 6. IMPACT ASSESSMENT

The purpose of this section is to assess and identify the most pertinent environmental impacts by describing certain quantifiable aspects of these impacts and to provide possible mitigation measures to minimise the magnitude of the impacts or to avoid them. Impacts would be expected from the various activities pertaining to the project (in all project phases), i.e. the planned construction, mining of salt, conveyance of brine and diversion of the coastal road and associated activities.

The impact assessment of the aspects listed in the Terms of Reference and listed again below, was carried out using an adaptation of the environmental impact assessment method described by Hacking (2001) as outlined in **Table 5**:

- Flora
- Fauna
- Marine Ecology
- Archaeology
- Socio-economic
- Traffic safety

The adapted Hacking method complies with the method provided in the Namibian EIA Policy document and EIA regulations. **Part A** provides the approach for determining impact consequence (combining severity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from **Parts B and C**. The interpretation of the impact significance is given in **Part D**. Both mitigated and unmitigated scenarios are considered for each activity and are described in **Table 6 to Table 24**.

**Table 5. Impact assessment methodology adapted from the Hacking Method**

PART A: DEFINITION AND CRITERIA		
Definition of SIGNIFICANCE	Significance = consequence x probability	
Definition of CONSEQUENCE	Consequence is a function of severity, spatial extent and duration	
Criteria for ranking of the SEVERITY/NATURE of environmental impacts	H	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action. Irreplaceable loss of resources.
	M	Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints. Noticeable loss of resources.
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints. Limited loss of resources.
	L+	Minor improvement. Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.
	H+	Substantial improvement. Will be within or better than the recommended level. Favourable publicity.
Criteria for ranking the DURATION of impacts	L	Quickly reversible. Less than the project life. Short term
	M	Reversible over time. Life of the project. Medium term
	H	Permanent. Beyond closure. Long term.

<b>Criteria for ranking the SPATIAL SCALE of impacts</b>	<b>L</b>	Localised - Within the site boundary.
	<b>M</b>	Fairly widespread – Beyond the site boundary. Local
	<b>H</b>	Widespread – Far beyond site boundary. Regional/ national

**PART B: DETERMINING CONSEQUENCE**

**SEVERITY = L**

<b>DURATION</b>	Long term	<b>H</b>	Medium	Medium	Medium
	Medium term	<b>M</b>	Low	Low	Medium
	Short term	<b>L</b>	Low	Low	Medium

**SEVERITY = M**

<b>DURATION</b>	Long term	<b>H</b>	Medium	High	High
	Medium term	<b>M</b>	Medium	Medium	High
	Short term	<b>L</b>	Low	Medium	Medium

**SEVERITY = H**

<b>DURATION</b>	Long term	<b>H</b>	High	High	High
	Medium term	<b>M</b>	Medium	Medium	High
	Short term	<b>L</b>	Medium	Medium	High
			<b>L</b>	<b>M</b>	<b>H</b>

Localised Within site boundary Site	Fairly widespread Beyond site boundary Local	Widespread Far beyond site boundary Regional/ national
<b>SPATIAL SCALE</b>		

**PART C: DETERMINING SIGNIFICANCE**

<b>PROBABILITY (of exposure to impacts)</b>	Definite/ Continuous	<b>H</b>	Medium	Medium	High
	Possible/ frequent	<b>M</b>	Medium	Medium	High
	Unlikely/ seldom	<b>L</b>	Low	Low	Medium
			<b>L</b>	<b>M</b>	<b>H</b>
<b>CONSEQUENCE</b>					

**PART D: INTERPRETATION OF SIGNIFICANCE**

<b>Significance</b>	<b>Decision guideline</b>
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

6.1 IMPACT ASSESSMENT: FLORA

**Table 6. Impact assessment of mining activities on floral ecology, biodiversity and habitat alteration within the planned mining area.**

Impact	Mining activities may affect the ecology and biodiversity of flora directly or through habitat alteration within the planned mining area.		
Description	<p>Solar salt production bears the risk of impacting the diversity of species within the various habitats by reducing population numbers of certain species within the planned mining area. The salt pan only supports few species of halophilic plants along its western boundary. Pressures on the population can potentially lead to a reduction of the numbers within an area causing the species to no longer exist within that area. Should a species be endemic to that same area then the risk of extinction is high. This is not the case for any of the habitats at Mile 68. Habitats can be severely altered potentially changing the type of habitat or leading to the removal of micro habitats. This could reduce plant populations locally but not significantly affect biodiversity.</p> <p>A specialist flora study was commissioned for the EIA of the project. Site visits together with reference to studies carried out elsewhere in the area reveal that the habitat and the flora present in the area are not endemic to the planned mining area but are either common throughout the Central Namib Desert or if restricted in distribution or to particular micro habitats, they do occur outside the planned mining area.</p> <p>The rock outcrop habitat and gravel plain habitat within the planned mining area are more diverse both in terms of niches and species compared to the other three habitats. The coastal hummocks, a relatively small habitat type along the shoreline of the Namib desert is particularly important from a biogeographical perspective. The rocky outcrops offer the most diverse habitat for microhabitat variety. The next habitat of note is the area of the gravel plain where high number of lichens and different lichen species occur. Any major alteration or destruction of these three habitats would rate the impact as severe with respect to flora species' population losses. The washes and salt pan habitats are least sensitive and are considered of little concern from a biodiversity perspective.</p> <p>It is important to note here that the habitats that will be developed on the most are the salt pan and gravel plain habitat. The former has been disturbed over many decades by previous salt production. The latter will be affected on an area that had been disturbed many decades ago but which has naturally rehabilitated resulting in plants re-establishing themselves.</p> <p>Ecological functioning can be disturbed as plant populations of species are reduced, affecting the availability of food, shelter and building material for faunal species. Reduction in the populations reduces the amount of seed needed to sustain the long-term regeneration of the plant populations.</p>		
Impact	Negative		
Phases	Phases during which mining activities may impact the ecology and biodiversity are highlighted below; The significance assessment was carried out on the operational phase which represents a long-term risk emanating from the project.		
Construction Phase	Operational Phase	Decommissioning Phase	Post Closure

<b>Severity</b>		Moderate / measurable deterioration. Noticeable loss of resources.				
<b>Duration</b>		Permanent. Beyond closure. Long term.				
<b>Spatial Scale</b>		Localised - Within the site boundary (Mining Licence Area)				
<b>Probability</b>		Possible/frequent				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Unmitigated</b>	<b>M</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>M</b>	<b>M</b>
<b>Significance Consequence</b>	<b>of</b>	The salt production activities will potentially alter the pre-existing habitats. Topsoil/rock/gravel, plants and lichens will be removed during construction of the processing plant and access roads.				
<b>Prevention</b>		Not possible; at least some specimens of the most common taxa found in the planned mining area will be removed during construction activities.				
<b>Recommended Mitigation Action</b>		<p>The spatial extent of the crystallisers should be kept to within the saline pan area as planned.</p> <p>The two planned bittern discharge structures that will cross the coastal hummock habitat should be reduced to one pipeline only. After construction, plants must be able to re-establish themselves above the submerged pipeline in order to allow free movement of organisms along the north south axis.</p> <p>The accessory works area for the processing plant, product stockpiling, workshops 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 without compromising the realistic needs of the business operation and making decisions that will safeguard against indiscriminate habitat alteration.</p> <p>Awareness training for personnel must focus on:</p> <ul style="list-style-type: none"> <li>➤ Training of all personnel to limit the habitat alteration during the construction and operational phases of the mine</li> <li>➤ Teach knowledge and understanding of the plants and lichens and their ecology</li> </ul> <p>The following basic rules must be adhered to:</p> <ul style="list-style-type: none"> <li>➤ No littering</li> <li>➤ Drive only on existing tracks as per Dorob National Park rules.</li> </ul>				
<b>Rehabilitation</b>		<p>Rehabilitation at mine closure could be applied to the accessory works areas as defined in the project description in this flora assessment. The following aspects should be considered when finalising the mine closure plan:</p> <ul style="list-style-type: none"> <li>➤ The infrastructure removal and landscaping of the accessory works area to make it aesthetically pleasing.</li> </ul>				

		<ul style="list-style-type: none"> <li>➤ Funds for rehabilitation should be set aside from the start of the operational phase.</li> <li>➤ Where the ground has been affected by spillages of hydrocarbons, these soils should be stockpiled and appropriately treated to regulate the contamination levels prior to being used for rehabilitation purposes.</li> </ul>				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Mitigated</b>	<b>L</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>
<b>Significance Consequence</b>	<b>of</b>	If the mitigation is followed through to rehabilitation, then the resultant significance of the consequence could be insignificant. It will not have a negative influence on the decision to grant environmental clearance.				
<b>Confidence Level</b>	A well designed and well implemented construction, operational and rehabilitation programme will provide the necessary confidence that the area of altered habitats would be minimised (reduced footprint) and will be rehabilitated at mine closure.					

**Table 7. Impact assessment of the construction and operation of the brine pipeline from ML210 to the planned crystallisers at Mile 68.**

<b>Impact</b>	<b>Brine pipeline construction, operation and decommissioning may affect the ecology or biodiversity of flora directly or through habitat alteration along the planned route.</b>		
<b>Description</b>	<p>Through the construction, operation and decommissioning of the brine pipeline there is potential for impacting the diversity of species within the various habitats by reducing population numbers of certain species along the planned brine pipeline route. Pressures on the population numbers can potentially lead to a reduction of a population within an area causing the species to no longer exist within that area. Should a species be endemic to that same area then the risk of extinction is high. Habitats can be severely altered potentially changing the type of habitat or leading to the removal of micro habitats. Neither of these latter hypothetical outcomes could occur as a result of the brine pipeline as the pipeline will fall within the footprint of the road reserve which represents a disturbed area as discussed below in more detail.</p> <p>A specialist flora study was commissioned for the EIA for the project. Site visits and studies carried out elsewhere in the area reveal that the habitat and the plants and lichens present in the area are not endemic to the planned brine pipeline route but are either common throughout the Central Namib Desert or if restricted in distribution or to particular micro habitats, they do also occur outside the planned brine pipeline route.</p> <p>The rock outcrops and gravel plain habitats along the planned brine pipeline route are more diverse both in terms of niches and species compared to the washes. No coastal hummock habitat or salt pan will be affected. The rocky outcrops, washes and gravel plains have been intersected and disturbed already along the brine pipeline route, which will run along the road reserve of the C34 coastal main road. A PVC pipeline with a 25 cm diameter will be used. A service road or track within the road reserve follows the salt road on both sides for its entire length. It is not always visible in the washes. This service track provides an easy access to the road reserve for laying the pipeline without extending into undisturbed habitats.</p> <p>Ecological functioning can be disturbed as populations of plant and lichen species are reduced, affecting the availability of food, shelter and building material for faunal species. Reduction in the populations reduces the amount of seed needed to sustain the long-term regeneration of the plant populations. These potential impacts are not foreseen to occur as the pipeline will be constructed within the existing road reserve.</p>		
<b>Impact</b>	Negative		
<b>Phases</b>	Phases during which the brine pipeline construction and brine conveyance activities may impact the ecology and biodiversity are highlighted below; The significance assessment was carried out on the operational phase which represents a long-term impact.		
<b>Construction Phase</b>	<b>Operational Phase</b>	<b>Decommissioning Phase</b>	<b>Post Closure</b>
<b>Severity</b>	Moderate / measurable deterioration. Noticeable loss of resources.		
<b>Duration</b>	Reversible over time (natural reseeding and revegetation). Life of the project.		



<b>Spatial Scale</b>		Localised - Within the site boundary (along Brine Pipeline)				
<b>Probability</b>		Possible/frequent				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Unmitigated	L	H	L	M	M	M
<b>Significance Consequence</b>	<b>of</b>	The construction activities will not alter the pre-existing habitats provided the boundary of the road reserve is not breached. Mitigation may be necessary & rehabilitation may be necessary				
<b>Prevention</b>		This is possible as no disturbance to pristine habitats is expected and the boundary of the road reserve will not need to be breached.				
<b>Recommended Mitigation Action</b>		<p>The pipeline should be built on the edge of the road reserve as this land has already been disturbed.</p> <p>The pipeline could lay on the surface of the ground or on small concrete plinths. The pipeline will act as a barrier for vehicular movement east of the road. This will reduce disturbances to the strict nature reserve area of the Dorob National Park.</p> <p>During operations the pipeline needs to be inspected to ensure that any potential leaking of the pipes can be rectified timeously. The placement of the pipeline on the eastern edge of the road reserve will also mean that any leaked-out brine will pond on the eastern side of the road and thus reduce the spatial extent of such a leak. Though the groundwater in the washes is brackish and many inland pans precipitate salt after evaporation, the potential leaking of the pipeline should be eliminated as far as possible so as to minimise any deleterious effect of hypersaline brine on the plants in the vicinity of any brine leaks.</p> <p>Covering the pipeline along its entire length with gypcrete or desert gravel will not only hide the presence of the pipeline, it will potentially provide a small barrier for trapping seeds which could potentially germinate. Although this may not be favourable for maintaining a uniform structure in the long term it will have some potential benefit for re-establishment of any vegetation removed during the pipeline's construction. A negative aspect of creating a mound is that vehicle owners may be more easily tempted to breach the mound and thereby possibly damage the pipeline. An exposed pipeline could be a deterrent from entering the Dorob National Park except along designated roads or tracks.</p> <p>Awareness training for personnel must focus on:</p> <ul style="list-style-type: none"> <li>➤ Training all personnel to limit the habitat alteration during the construction and operational phases of the pipeline</li> <li>➤ Teach knowledge and understanding of the plants and lichens and their ecology</li> </ul>				

		<p>The following basic rules must be adhered too:</p> <ul style="list-style-type: none"> <li>➤ No littering</li> <li>➤ Driving only on existing roads (national roads and roads created by the mine inside the gravel mining area)</li> </ul>				
<b>Rehabilitation</b>		<p>Rehabilitation at mine closure could be applied to the brine pipeline and route as defined above in the project description of this flora assessment. The following aspects should be considered when finalising the mine closure plan:</p> <ul style="list-style-type: none"> <li>➤ Infrastructure removal and landscaping of the road reserve to match as far as possible the baseline conditions.</li> <li>➤ Funds for rehabilitation should be set aside from the start of the operational phase.</li> <li>➤ Reasonable and acceptable ways of rehabilitation should be implemented on an ongoing basis as well as at the time of site closure.</li> </ul>				
<b>Mitigation</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Mitigated</b>	<b>L</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>
<b>Significance of Consequence</b>		<p>If the mitigation is followed through to rehabilitation, then the resultant significance of the consequence could be insignificant. It will not have a negative influence on the decision to grant environmental clearance.</p>				
<b>Confidence Level</b>		<p>A well designed and well implemented construction, operational and rehabilitation programme will provide the necessary confidence that the size of altered habitats would be minimised (reduced footprint) and will be rehabilitated at mine closure if not beforehand.</p>				

**Table 8. Impact assessment of the construction and operation of the planned new section of coastal road around the new Mining Licence area at Mile 68.**

<b>Impact</b>	<b>Construction and operation of the new section of coastal road decommissioning may affect the ecology or biodiversity of flora directly or through habitat alteration along the planned route.</b>		
<b>Description</b>	<p>Through the construction and operation of the new section of coastal road there is potential for impacting the biodiversity of species within the various habitats by reducing population numbers of certain species along the planned route. This new route for the C34 coastal road constitutes an upgrade of an existing road. Pressures on the plant population numbers can potentially lead to a reduction of a population within an area causing the species to no longer exist within that area. Should a species be endemic to that same area then the risk of extinction is high. Habitats can be severely altered potentially changing the type of habitat or leading to the removal of micro habitats. These hypothetical conditions will not manifest as the new planned route follows an existing road where earthworks through the rock outcrop habitats occurred in the past.</p> <p>A specialist flora study was commissioned for the EIA for the project. Site visits and studies carried out elsewhere in the area reveal that the habitat and the flora present in the area are not endemic to the planned new road route but are either common throughout the Central Namib Desert or if restricted in distribution or to particular micro habitats, they do occur outside the planned new road route.</p> <p>The rock outcrops, gravel plain and wash habitats have been intersected and disturbed along the new road route by construction at some time in the past. This planned development will not increase the footprint of this existing road construction substantially. The sensitive rock outcrop areas could potentially be disturbed beyond the current extent.</p> <p>Ecological functioning can be disturbed as populations of species are reduced, affecting the availability of food, shelter and building material for faunal species. Reduction in the populations reduces the amount of seed needed to sustain the long-term regeneration of the plant populations. For this project this is unlikely to occur as the new road route follows a pre-existing route that has already been disturbed.</p>		
<b>Impact</b>	Negative		
<b>Phases</b>	Phases during which the new road construction and operational activities may impact the ecology and biodiversity are highlighted below; The significance assessment was carried out on the operational phase which represents a long term impact. The closure of the road is unlikely.		
<b>Construction Phase</b>	<b>Operational Phase</b>	<b>Decommissioning Phase</b>	<b>Post Closure</b>
<b>Severity</b>	Moderate / measurable deterioration. Noticeable loss of resources.		
<b>Duration</b>	Permanent. Beyond closure. Long term.		
<b>Spatial Scale</b>	Localised - Within the site boundary (Along Brine Pipeline)		
<b>Probability</b>	Possible/frequent		

Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	L	L	L	L	M	M
<b>Significance of Consequence</b>	The construction activities will not alter the habitats that previously existed as the new road route has already been disturbed. A cautionary approach by the construction team will ensure the boundaries of the existing road route are not breached. This is the Mitigating measure that needs to be practiced together with rehabilitation of new tracks established during the construction phase.					
<b>Prevention</b>	This may not be possible as at least a few plant and lichen specimens of the most common taxa may be removed during construction activities.					
<b>Recommended Mitigation Action</b>	<p>The new road should be built in such a way that it disturbs no more of the rocky outcrops and washes than what is necessary.</p> <p>Due to the fact that much of the preparatory civil works have been completed already by other parties the completion of the new road will not add additional disturbed areas to the overall footprint.</p> <p>Awareness training for personnel must focus on:</p> <ul style="list-style-type: none"> <li>➤ Training all personnel to limit the habitat alteration during the construction and operational phases of the road</li> <li>➤ Teach knowledge and understanding of the flora and its ecology</li> </ul> <p>The following basic rules must be adhered to:</p> <ul style="list-style-type: none"> <li>➤ No littering</li> <li>➤ Driving only on existing roads (national roads and roads created by the mine inside the gravel mining area)</li> </ul>					
<b>Rehabilitation</b>	Rehabilitation of the new road will not be necessary in the foreseeable future as the road will be permanent and will be maintained even after the mine was to ever close.					
Mitigation	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	L	L	L	L	L
<b>Significance of Consequence</b>	If the mitigation hierarchy is followed through to operations and since little additional disturbance to habitats will occur to complete the construction of					

	the road then the resultant significance of the consequence would be insignificant. It will not influence the decision.
<b>Confidence Level</b>	A well designed and well implemented construction and operational programme will provide the necessary confidence that the altered habitats would be minimised (reduced footprint).

## 6.2 IMPACT ASSESSMENT: FAUNA

Table 9. Impact assessment of mining activities on habitats, animals and ecology

<b>Impact</b>		<b>Direct and indirect loss of habitats and organisms; disturbance of ecological processes</b>				
<b>Description</b>		<p>Causes of the impact include:</p> <ul style="list-style-type: none"> <li>• The clearing of land.</li> <li>• Excavation and operation of crystallisers.</li> <li>• Footprint of the processing plant and accessory works.</li> <li>• Impingement on strict nature reserve part of the Dorob National Park</li> <li>• Vehicle and people access.</li> <li>• Disturbance from increased vehicle and people access.</li> <li>• Human behaviour: collection of animals or plants, and sanitation practices.</li> </ul>				
<b>Impact</b>		Negative				
<b>Phases</b>		Phases during which mining activities may impact the ecology and biodiversity are highlighted below.				
<b>Construction phase</b>		<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>		
<b>Severity</b>		Measurable deterioration and noticeable loss of resources				
<b>Duration</b>		Permanent loss of habitat and disturbance of ecology				
<b>Spatial Scale</b>		Within site boundary				
<b>Probability</b>		Definite, continuous impact				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Unmitigated</b>	<b>M</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>H</b>	<b>M</b>
<b>Significance of Consequence</b>		<ul style="list-style-type: none"> <li>• Crystallisers cause long-term damage to saline pan. Since about more than 50% of the planned area for crystallisers is already disturbed, the damage will be limited in extent.</li> <li>• Death of slow-moving animals and dormant invertebrates in the gravel plain.</li> <li>• Death of animals when struck by vehicles and machinery.</li> <li>• Loss of shelter for reptiles mainly, and also ground-dwelling mammals in rock outcrop, gravel plain and washes habitats.</li> <li>• Loss of vegetation on the gravel plain and in washes causes loss of herbivores, which results in loss of food species for reptiles.</li> <li>• Since relatively few threatened vertebrate species will be affected, there is a low increase of the risk to species survival.</li> <li>• Only the saline pan should be developed in the southern part of the proposed ML area with no development in the gravel plain in this southern sector of the ML area.</li> </ul>				

<b>Prevention</b>		Not possible.				
<b>Recommended Mitigation Action</b>		<ol style="list-style-type: none"> <li>1. Limit the footprint of the crystallisers and accessory works to the currently planned size and location (i.e. saline pan and gravel plain west of new road diversion, allow only two access points through coastal hummocks and allow one linear route only through rock outcrop areas with no other rock outcrops to be disturbed);</li> <li>2. Do not expand to the east/northeast of the planned diversion road or planned accessory works area.</li> <li>3. No entry signs to ensure that the coastal hummocks, rock outcrops and washes are inaccessible to both staff and the public. This is the Park requirement for Mining Areas and are to be erected where existing tracks pass through the ML area from the coastal road to the beach.</li> <li>4. Ensure that the coastal hummocks are accessible only for maintenance of the bittern pipelines.</li> <li>5. Provide sufficient ablution facilities and train staff and contractor staff about indiscriminate defecating.</li> <li>6. 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.</li> </ol>				
<b>Rehabilitation</b>						
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Mitigated	L	H	L	M	L	L
<b>Significance of Consequence</b>		Significance of the impact can be mitigated by following proposed measures and a professionally designed rehabilitation plan.				
<b>Confidence Level</b>		High. Assiduous implementation of the mitigation measures proposed by all the specialists, as well as strict adherence to a rehabilitation plan, will reduce the footprint and severity of the impact.				

**Table 10. Impact assessment of barrier effect of brine pipeline**

Impact		Barrier to the normal movement of animals				
<b>Description</b>		<p>15 km pipe with diameter 25 cm running from Cape Cross pump stations to Mile 68 crystallisers.</p> <p>Both an aboveground and underground pipeline were assessed by the fauna specialist. An underground pipeline was considered of low significance, both with and without mitigation measures. The proponent discarded the option of an underground pipeline as this would require drilling and blasting and also the deployment of heavy machinery over long stretches of the envisaged development. Therefore, the remainder of this assessment deals with an aboveground pipeline only.</p> <p>A positive potential impact is that an aboveground pipeline could prevent indiscriminate 4x4 driving on sensitive habitats, especially useful if the pipe is laid east of the C34.</p>				
<b>Impact</b>		Negative				
<b>Phases</b>		Phases during which mining activities may impact the ecology and biodiversity are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.				
<b>Construction phase</b>		<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>		
<b>Severity</b>		Some death and injury, and measurable deterioration in migration and movement patterns.				
<b>Duration</b>		Life of the project and reversible over time				
<b>Spatial Scale</b>		Beyond site boundary but local				
<b>Probability</b>		Possible exposure to impacts				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Unmitigated	M	M	M	M	M	M
<b>Significance of Consequence</b>		<p>Insurmountable barrier for small animals, especially reptiles.</p> <p>Cuts off the normal movement routes of reptiles and small mammals.</p> <p>Increased risk of death because of increased stress on organisms in their foraging and hunting routines.</p> <p>Increased risk of roadkill on the old C34 that will be used by salt mine vehicles: small animals that cannot cross the barrier turn back onto the road.</p> <p>Although the small diameter of the pipe means it is unlikely to be a significant barrier to the movement patterns of jackals or brown hyenas, they could get confused by having the pipeline on one side and vehicle traffic on their other side, making them more vulnerable to vehicle collisions.</p>				
<b>Prevention</b>		Possible, if the proposed mitigation measures are followed.				



<b>Recommended Mitigation Action</b>		Construct earth mounds at intervals over the entire length of the pipeline. It should be built of such materials and in such a way as to be resistant to wind erosion. The gradient and surface should be such that animals of all sizes and propulsion methods are able to utilise it. Stay within the road reserve, i.e. along the path where the land is already disturbed.				
<b>Rehabilitation</b>		During decommissioning: remove pipe and pump stations and rehabilitate substrate.				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Mitigated</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Significance of Consequence</b>		Low significance if the mitigation measures are followed.				
<b>Confidence Level</b>		High.				

**Table 11. Impact assessment of bittern pipeline on habitats and organisms**

<b>Impact</b>		<b>Direct and indirect loss of animals, as well as destruction and/or disturbance of a highly sensitive habitat</b>				
<b>Description</b>		Bittern pipeline across the coastal hummocks. Discharge of bitterns on the beach. Increased vehicle traffic and human activity from maintenance procedures				
<b>Impact</b>		Negative				
<b>Phases</b>		Phases during which mining activities may impact the ecology and biodiversity are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.				
<b>Construction phase</b>		<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>		
<b>Severity</b>		Moderate deterioration and noticeable loss of habitat				
<b>Duration</b>		Life of the project and reversible over time				
<b>Spatial Scale</b>		Within the site boundary				
<b>Probability</b>		Frequent exposure to impacts				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Unmitigated	M	M	L	M	M	M
<b>Significance of Consequence</b>		Construction: destruction of habitat and organisms - although it is a localised, temporary impact, the dune hummocks are a highly sensitive habitat. Pipeline forms a barrier to the natural movement patterns of reptiles and small mammals, causing them increased stress and an increased risk of death to individuals. Disruption of vegetation results in increased risk of death to animals that depend on it for food and shelter. Natural sand movement will likely bury the pipeline eventually, enabling the recolonisation of vegetation.				
<b>Prevention</b>		Not possible.				
<b>Recommended Mitigation Action</b>		Limit vehicle access for maintenance to a single-lane track directly next to the pipeline. Strict control measures to prevent the public from accessing the maintenance road. Keep disturbance (i.e. pipeline and maintenance track) to as narrow a corridor as possible. Lay the pipes below the surface of the dunes. No sand harvesting.				
<b>Rehabilitation</b>		Removal of the pipeline, following the same mitigation measures as in the construction phase of the project.				

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	M	L	L	L	L
<b>Significance of Consequence</b>	Significance of the impact could be low if the mitigation measures and a professionally designed rehabilitation plan are implemented.					
<b>Confidence Level</b>	High.					

**Table 12. Impact assessment of new road on habitat and organisms**

<b>Impact</b>		<b>Direct and indirect loss of animals, as well as destruction and/or disturbance of habitat</b>				
<b>Description</b>		<p>A 5 km road, permanently diverting traffic from the C34 to the east of the accessory works, will be built. Once the new road is completed the old stretch of C34 will be used by the salt mine vehicles only.</p> <p>The road runs through the gravel plain in an area containing washes and rock outcrop habitats.</p> <p>The new road is being built on an existing dirt road where there is already disturbance along the linear servitude.</p>				
<b>Impact</b>		Negative				
<b>Phases</b>		<p>The road will be a permanent structure and it is highly unlikely that it will be closed, thus decommissioning and post closure phases are not applicable.</p> <p>Phases during which mining activities may impact the ecology and biodiversity are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.</p>				
<b>Construction phase</b>		<b>Operational phase</b>		<b>Decommissioning phase</b>	<b>Post closure</b>	
<b>Severity</b>		Measurable deterioration and noticeable loss of resources				
<b>Duration</b>		Permanent and beyond closure of project				
<b>Spatial Scale</b>		Beyond site boundary, but on already existing dirt road				
<b>Probability</b>		Frequent exposure to impact				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Unmitigated</b>	<b>M</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>M</b>	<b>M</b>
<b>Significance of Consequence</b>		<p>During construction: vehicle and heavy machinery activity, clearing land, laying down material, laydown areas, soil disruption, human presence. These construction activities cause disturbance to the soil and topography, are considered severe even though it is linear, and thus limited, in spatial extent. Changes in water runoff patterns and contamination from runoff could cause decline in habitat quality.</p> <p>Barrier effect on rats, mice and gerbils, as well as reptiles.</p> <p>Irreversible destruction of lichens, causing decline in food sources for animals.</p> <p>Roadkill - animal mortality increases.</p> <p>Brown hyenas are particularly prone to roadkill. The new road will relocate the existing C34, moving existing traffic and impacts to the new location and not changing the risk to hyenas. On the old stretch of C34 however, the salt mine will result in traffic of heavy machinery.</p> <p>Increased access to highly sensitive habitats (rocky outcrops and washes northeast of new road) for the 4x4 driving public</p>				

<b>Prevention</b>		Not possible.				
<b>Recommended Mitigation Action</b>		<p>During construction, keep disturbance within the designated footprint of the road and verges.</p> <p>After construction, start rehabilitation by levelling and removing construction material as soon as the disturbance has ceased.</p> <p>Put effective barriers along new road and C34 to prevent vehicle access to the washes and rocky outcrops, while not affecting the movement patterns of hyenas, jackals and springbok.</p> <p>Impacts are likely to be of medium to low significance due to the level of current disturbance.</p>				
<b>Rehabilitation</b>		Road will likely be permanent.				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Mitigated	L	M	L	L	L	L
<b>Significance of Consequence</b>		Significance is low, mainly because of the existing level of disturbance, but also if mitigation measures are strictly implemented.				
<b>Confidence Level</b>		High.				

### 6.3 IMPACT ASSESSMENT: MARINE ECOLOGY

#### 6.3.1 The marine impact assessments

Table 13. Impact assessment of increased salinity

Impact		Impacts of elevated salinity on the physiological functioning of marine organisms				
Description		Some cumulative impacts may be anticipated as the bitterns discharge for the Cape Cross Salt Works is only ~15 km to the north of the Mile 68 discharge. Discharges at both locations will, however, will be sporadic and dilution and dispersal in the turbulent surf zone will be rapid.				
Impact		Negative				
Phases		Phases during which mining activities may impact marine ecology are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.				
Construction phase		Operational phase	Decommissioning phase	Post closure		
Severity		Minor deterioration				
Duration		Short-term; for the duration of the discharge				
Spatial Scale		Site specific				
Probability		Unlikely (beyond the sacrificial zone)				
Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	L	L	L	L	L
Significance of Consequence		Any effects on marine biota would be fully reversible.				
Prevention		Not possible.				
Recommended Mitigation Action		Little or no mitigation necessary				
Rehabilitation		None				
Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance

<b>Mitigated</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Significance of Consequence</b>	Low. Impacts will be ephemeral as bitterns will only be periodically released.					
<b>Confidence Level</b>	High					

**Table 14. Impact assessment of elevated temperature**

Impact		Impacts of elevated temperature on the physiological functioning of marine organisms				
Description		Having been stored in a relatively shallow holding pond, the discharged bitterns can be expected to, at times, have a higher temperature than the receiving waters. Temperature elevations are not expected to exceed 28°C in the bitterns brine. No cumulative impacts are anticipated, as discharges will be sporadic and biota are adapted to short-term temperature fluctuations.				
Impact		Negative				
Phases		Phases during which mining activities may impact marine ecology are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.				
Construction phase		Operational phase	Decommissioning phase	Post closure		
Severity		Minor deterioration				
Duration		Short-term; for the duration of the discharge				
Spatial Scale		Site specific				
Probability		Unlikely (beyond the sacrificial zone)				
Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	L	L	L	L	L	L
Significance of Consequence		The effects of elevated temperature on marine communities is considered to be of low severity and any effects would remain highly localised and persist over the very short-term only in the turbulent surf zone. Impacts will be ephemeral as bitterns will only be periodically released.				
Prevention		Not possible.				
Recommended Mitigation Action		No mitigation necessary				
Rehabilitation		None				
Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance



<b>Mitigated</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>	<b>L</b>
<b>Significance of Consequence</b>	Any effects on marine biota would be fully reversible.					
<b>Confidence Level</b>	High.					

Table 15. Impact assessment of ionic imbalance

Impact		Impacts of ionic imbalances in the bitters on the physiological functioning of marine organisms				
Description		As most aquatic animals spent a great deal of metabolic energy regulating water and ions, any changes in the concentration or composition of ions in the external medium, particularly over longer periods, can result in chronic stress to the animal, which in turn can affect biological functions such as growth and reproduction. Potassium is the most toxic ion to marine organisms, but at the concentrations expected in the undiluted bitters, magnesium and bromide are likely also to reach sub-lethal or lethal levels.				
Impact		Negative				
Phases		Phases during which mining activities may impact marine ecology are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.				
Construction phase		Operational phase	Decommissioning phase	Post closure		
Severity		Medium severity but effects will likely remain highly localised				
Duration		Short-term; for the duration of the discharge				
Spatial Scale		Site specific				
Probability		Unlikely (beyond the sacrificial zone)				
Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	M	L	L	L	L	L
Significance of Consequence		The effects of an ionic imbalance in the discharged bitters on marine communities is considered to be of medium severity but effects will likely remain highly localised as dilution and dispersion of the bitters in the surf zone will be rapid. Impacts will be ephemeral as bitters will only be periodically released.				
Prevention		Not possible.				
Recommended Mitigation Action		Little or no mitigation necessary. Discharge of the bitters onto the beach and into the surf zone would ensure rapid dilution of the effluent with toxic effects of ionic imbalances limited to the sacrificial zone and only for as long as the effluent is discharged.				
Rehabilitation		None				

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	L	L	L	L	L
<b>Significance of Consequence</b>		Any effects on marine biota would be fully reversible.				
<b>Confidence Level</b>		High				

**Table 16. Impact assessment of nutrient enrichment**

Impact		Impacts of nutrient enrichment in the surf zone following release of bitterns				
<b>Description</b>		Bitterns are nutrient-rich and when discharged into the surf zone this nutrient enrichment will likely result in a localised increase in phytoplankton productivity. Should they occur, plankton blooms would be ephemeral only, but are likely to temporarily attract higher order consumers to the vicinity of the bitterns discharge. Subsequent deposition and bacterial decomposition of the excess organic matter can result in the depletion of dissolved oxygen (particularly in the bottom waters and in the sediments). Whereas this may lead to localised anoxia in the sediments in the immediate vicinity of the discharge, the turbulent conditions in the surf zone, and medium to coarse beach sediments in the area will ensure rapid flushing of the impacted area and any effects are likely to be of short duration only.				
<b>Impact</b>		Negative/Positive				
<b>Phases</b>		Phases during which mining activities may impact marine ecology are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.				
<b>Construction phase</b>		<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>		
<b>Severity</b>		Minor deterioration				
<b>Duration</b>		Short-term; for the duration of the discharge				
<b>Spatial Scale</b>		Site specific				
<b>Probability</b>		Possible				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Unmitigated	L	L	L	L	L	L
<b>Significance of Consequence</b>		Some cumulative impacts may be anticipated as the bitterns discharge for the Cape Cross Salt Works is only ~15 km to the north of the Mile 68 discharge. Discharges at both locations will, however, will be sporadic and dilution and dispersal in the turbulent surf zone will be rapid. The effects of nutrient enrichment in the surf zone as a consequence of the discharge of bitterns is considered to be of low severity. Impacts will persist over short-term only and may be positive in that the resulting phytoplankton blooms may serve as a temporary food source for surf zone fish.				
<b>Prevention</b>		Not possible.				
<b>Recommended Mitigation Action</b>		Little or no mitigation necessary.				
<b>Rehabilitation</b>		None				

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	L	L	L	L	L
Significance of Consequence		Low				
Confidence Level		High				

### 6.3.2 Mitigation Measures

Even though all potential marine ecology impacts resulting from the bitterns' disposal were assessed to be of low significance, the following mitigation measures and management actions are proposed and are applicable to all the impacts.

#### Essential mitigation measures include:

- Establish only a single discharge point, i.e. a single bitterns' outlet only (i.e. either the northern OR the southern option, but not both) thereby restricting the impact footprint;
- Monitoring of bitterns' density and ionic concentrations composition prior to release onto beach;
- Monitoring of discharge volumes and discharge rates on release of bitterns;
- Positioning of the discharge point as far down the beach as possible (e.g. through a flexible end section of the pipeline);
- Discharge of bitterns at half-tide or higher during the ebbing tide only to maximise the effects of dilution;
- Reporting of any mortalities of marine life in the vicinity of the bitterns' outlet as a direct consequence of the discharge;

#### Best Practice mitigation measures include:

- Discharge the bitterns during the 2 ebbing high tides of the spring tide event which occurs twice a month (high tides during neap tide will not reach up the beach enough to dilute the discharged bitterns);
- Undertaking a hydrodynamic modelling study of the bitterns' discharge (should consequences be reported necessitating verification) to establish the extent of the sacrificial zone and confirm the predictions of this ecological assessment.

### 6.3.3 General recommendations from the marine assessment

Due to the potential detrimental environmental effects associated with the discharge of high volumes of bitterns, many of the large evaporative salt works around the world have investigated alternative uses for the bitterns. Solar evaporation of bittern is, however, much slower than the salt precipitation stage and results in the crystallization of a complex and varying mixture of halite, sylvite, and double salts of potassium, sodium, and magnesium. The recovery of marketable products from the bittern salt crops becomes difficult and often inefficient due to the need for further processing.

Nonetheless, the crystallization and processing of bitterns and the subsequent application of the products in other industries is receiving widespread attention (Kokihama *et al.* 1993; CORDIS 1997; Davis 1999; Davis 2006). For example, bromine (Br<sub>2</sub>) can be recovered following treatment of bittern by electrodialysis (Yalçin *et al.* 1997). Crystallization of bitterns has been used for the recovery of high purity epsomite, bischofite and sylvite (Fernández-Lozano 1973; De Medeiros Rocha *et al.* 2012), magnesium chloride-Hexahydrate for use as a dust suppressant and de-icing product (Jadhav 1983; Madbouly, 2004; De Medeiros Rocha *et al.* 2012), and potash with the co-production of Epsom salt and ammonium sulphate yielding a K-N-S compound fertilizer (Aral *et al.* 2004; Ghara *et al.* 2014).

Furthermore, the enriched magnesium content and the high ionic strength of bitterns contribute to their effectiveness as a coagulant, and when added to wastewater alkalized with lime or caustic soda, liquid bittern have been found to successfully remove suspended solids and faecal coliform bacteria (Ayoub *et al.* 2000) and heavy metals (cadmium, chromium, lead, mercury, zinc, arsenic, copper, and nickel) (Ayoub *et al.* 2001).

As the volumes of bitterns produced by the Mile 68 saltworks will not be at the same scale as those utilized for the recovery of products described above, the project cannot provide the economy of scale to consider maximising the use for the salts remaining in the bitterns (e.g. for use as fertilizers) in preference to discharge to the marine environment. Furthermore, as the bitterns' composition will not be typical of that obtained from solar evaporative saltworks, and all the potential impacts to the marine ecology resulting from their disposal were assessed to be of low significance, the implementation of costly mitigation measures is unwarranted.

### 6.3.4 Environmental Acceptability and Impact Statement

In view of any future discharge of bitterns into the marine environment Gecko Salt needs to record and monitor the bitterns' disposal. With the implementation of the recommendations, and appropriate mitigation measures advanced in this report, and the EIA for the proposed project, there is no reason why the proposed bitterns discharge should not proceed.

## 6.4 IMPACT ASSESSMENT: ARCHAEOLOGY

**Table 17. Impact assessment on an archaeological site**

<b>Impact</b>	<b>The accessory works may cause physical disturbance or destruction of an archaeological site</b>					
<b>Description</b>	<p>A systematic foot survey of the proposed accessory works area revealed a single archaeological site close to the north-western margin of the area in an area of low-lying ground on the leeward side of a weathered dolerite dyke.</p> <p>The site consisted of seven dispersed stone features probably representing windbreaks and storage facilities covering an area of approximately 300m<sup>2</sup>. There were no artefacts or other archaeological remains visible on the surface. The stone features are similar to those found in the vicinity of Cape Cross and Wlotzkasbaken.</p> <p>Although the stone features appear to be undisturbed, the site lies on the edge of a large excavated pit with associated spoil heaps. The site is also crossed by a disused vehicle track.</p> <p>Although undisturbed, Site 371 is considered to have negligible research value.</p>					
<b>Impact</b>	Negative					
<b>Phases</b>	Phases during which mining activities may impact the archaeology are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.					
<b>Construction phase</b>	<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>			
<b>Severity</b>	Irreplaceable loss of resources					
<b>Duration</b>	Permanent, irreversible					
<b>Spatial Scale</b>	Localised					
<b>Probability</b>						
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Unmitigated	M	H	L	M	M	L
<b>Significance of Consequence</b>	Disturbance and/or destruction of the site would entail permanent and irreversible loss of archaeological material evidence, but the site is of negligible research value.					
<b>Prevention</b>	n/a					
<b>Recommended Mitigation Action</b>	If the site does not lie unavoidably in the path of the proposed activities it should be demarcated and left undisturbed.					
<b>Rehabilitation</b>	None					

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	L	L	L	L	L
<b>Significance of Consequence</b>		Low, it will not have an influence on the decision.				
<b>Confidence Level</b>		High				



## 6.5 IMPACT ASSESSMENT: SOCIO-ECONOMIC

**Table 18. Impact Assessment of Employment Creation and Skills Development**

<b>Impact</b>	<b>Employment Creation and Skills Development</b>		
<b>Description</b>	<p>Once an Environmental Clearance Certificate and a mining licence have been granted, Gecko intends to start constructing the re-crystalliser beds on top of the pan surface and construct the processing plant in the accessory works area at Mile 68.</p> <p>The Mile 68 Gecko Salt project could provide skills development, employment opportunities and a build-up of work experience for some of the residents of Henties Bay who have a minimum of Grade 10.</p> <p>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.</p> <p>Some of the truck drivers may come from or want to live in Swakopmund or Walvis Bay where the larger towns can offer better schools and recreation benefits although the cost of housing is likely to be higher. Recruitment from Henties Bay will carry a more significant positive local impact compared to recruitment from Swakopmund or Walvis Bay, where there are more employment opportunities.</p>		
<b>Impact</b>	Positive		
<b>Phases</b>			
<b>Construction phase</b>	<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>
Constructing the mine	Mining	Dismantling	Loss of jobs
<b>Severity</b>	Considerable improvement		
<b>Duration</b>	The duration of employment creation is ranked high to correspond with the long life of mine and to acknowledge that work experience builds human capacity for a lifetime and can contribute to the nation's sustainable development beyond the life of project.		
<b>Spatial Scale</b>	The spatial scale is high as people will be employed from across the region and possibly nationally.		
<b>Probability</b>	Definite; The probability of these impacts occurring is high – the salt facility will need significant numbers of semi-skilled labour.		

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	H+	H	H	H	H	H+
<b>Significance of Consequence</b>	The consequence of these positive impacts is high due to their high intensity, their widespread nature and long duration. The significance of these positive impacts is high because the consequence and probability of the impacts occurring are both high.					
<b>Prevention</b>	If the project does not go ahead then the positive impacts will not be realised.					
<b>Recommended Mitigation Action</b>	<p>The enhancement objective is to 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.</p> <p>The mitigation objective is to reduce potential negative impacts brought about by in-migration to Henties Bay if there was national recruitment.</p> <ol style="list-style-type: none"> <li>1. Establish short, intensive training programmes for machine and truck operators and other required skills, during construction of the re-crystallisers and processing plant, to enable people in Henties Bay to take up the majority of low and semi-skilled jobs in the operations phase;</li> <li>2. 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.</li> <li>3. 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; 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.</li> <li>4. 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;</li> <li>5. 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;</li> <li>6. 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".</li> </ol>					
<b>Decommissioning</b>	<b>Job losses on project closure:</b>					

<b>planning</b>		<p>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.</p> <p>An unexpected closure could lead to a sudden loss of jobs. To mitigate this situation and mine closure Gecko should:-</p> <ol style="list-style-type: none"> <li>1. 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;</li> <li>2. Ensure that the facility closure plan is understood by the workforce and guarantees final salary pay-outs and pension transfers.</li> <li>3. 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;</li> <li>4. Ensure skills upgrading during employment is documented and accredited where possible so skills are recognised with future employers.</li> </ol>				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Mitigated	H+	H	H	H	H	H++
<b>Significance of Consequence</b>		High				
<b>Confidence Level</b>		I am confident the significance will increase if a cumulative impact is realised, namely, that both the Phase 1a of the Cape Cross salt project and the Mile 68 project operate at the maximum intended extent.				

**Table 19. The Impact Assessment of Economic Impacts at a local, regional and national level**

<b>Impact</b>	<b>Economic Impacts at a local, regional and national level</b>
<b>Description</b>	<p>At this highest extraction rate, the Cape Cross salt resource has the potential to be mined on a very long-term basis. The sea is ultimately the source of the salt and so brine would be available for use at Mile 68 on a sustainable basis; albeit at a slower rate should the saturated brine levels take longer to form.</p> <p>The capital investment for the whole Gecko Salt Project for Cape Cross was estimated in 2009 was N\$120 million. This must be increase now as the current project adds elements that were not considered in 2009. Gecko Salt started procurement and construction at Cape Cross in 2018, so now the estimated cost has risen to over N\$190 million, calculated at an annual inflation of 6% since 2010. The capital expenditure includes:</p> <ul style="list-style-type: none"> <li>➤ Importing harvesters and trucks</li> <li>➤ Constructing dykes and crystalliser excavations</li> <li>➤ Importing engineering and other services</li> <li>➤ Local services, administration, taxes etc.</li> </ul>

	<p>The Mile 68 project will cost approximately a third of the cost of the Cape Cross project. The reason for this is the relocation of resources that would have been expended in the follow phases of the Cape Cross project that will now be allocated to Mile 68.</p> <p>Other direct economic impacts of the project are interest and amortisation payments on capital and profits of the mining and processing. The employees and contractors will pay personal income tax and VAT on goods and services they purchase, as will suppliers and their employees in the supply chains of goods and services.</p> <p>The induced economic impacts are derived from the purchases of products and services by employees and contractors as a result of their increased spending power stemming from salaries and wages. If these products and services are produced locally, there will be greater economic impact on Henties Bay and the Erongo Region at large. Moreover, this induced level has its own backward chain of purchases by the employees and contractors down the supply chain.</p> <p>Indirect economic impacts arise through the provision of all inputs purchased in order to mine, purify the salt and transport it to ships, as well as the inputs purchased by their suppliers to produce the inputs, and so on down the production chain. This backward chain is usually very extensive and includes the steel, cement, energy, machinery and equipment needed to construct the processing plant and other buildings; operating inputs and replacement parts, and a wide variety of scientific, financial, accounting and technical services. For example, during construction it is expected that gravel, sand, cement, prefabricated parts, transport and labour will be sourced locally in Namibia. In addition, some services such as security, catering, contractor / employee transport, laundry and cleaning will probably be outsourced to other Namibian companies. To align with NDP5, Gecko and its suppliers are urged to purchase Namibian-made goods or from the South African Development Community businesses which will increase the multiplier effect on the Namibian economy.</p>		
<b>Impact</b>	Positive		
<b>Phases</b>			
<b>Construction phase</b>	<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>
Constructing the mine	Mining	Dismantling	Loss of jobs
<b>Severity</b>	There will be significant direct economic benefits to the local, regional and national economy during construction and operations, especially if labour, goods and services are sourced from within the region whenever possible; these are rated as high positive.		
<b>Duration</b>	The duration of these positive impacts is long term as the life of the mine is potentially on-going.		
<b>Spatial Scale</b>	The spatial scale is high as economic impacts could be felt regionally and nationally.		
<b>Probability</b>	Definite; The probability of these impacts occurring is high.		

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Unmitigated	H+	H	H	H+	H	H+
<b>Significance of Consequence</b>	The consequence of the positive economic impacts is high due to the high intensity, the widespread nature of the economic impacts and their long duration. The significance of the positive impacts is high because the consequence and probability of the impacts occurring are rated high					
<b>Prevention</b>	If the project does not go ahead then the positive impacts will not be realised.					
<b>Recommended Mitigation Action</b>	<p>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.</p> <p>There are a number of ways to strengthen these impacts, so the project brings greater benefits to the local communities most affected by the salt production and to the country as a whole. 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 to the company.</p> <p><i>The following actions need to be implemented:</i></p> <p>Minimise accommodation on site so that employees can boost the local economies in nearby settlements.</p> <ol style="list-style-type: none"> <li>1. Pay attractive salaries and wages;</li> <li>2. Have procurement policies that give preference to the purchase of Namibian-made goods;</li> <li>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.</li> <li>4. Facilitate agricultural producers in Henties Bay to increase production in order to sell produce to the mine and local residents.</li> <li>5. Use small-scale contractors and labour-intensive work, where possible</li> </ol>					
<b>Decommissioning planning</b>	<p><b>Emergency situation</b></p> <p>Should at any point it seem likely that the mine may have to cease operations early and / or go into care and maintenance, employees, suppliers and all other relevant stakeholders should be informed promptly and given enough time to make financial adjustments.</p>					

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	H+	H	H	H	H	H++
<b>Significance of Consequence</b>		High				
<b>Confidence Level</b>		I am confident the significance will increase if a positive cumulative impact is realised, namely, that in the medium term both the Phase 1a of the Cape Cross salt project and the Mile 68 project operate at the maximum intentioned extent.				

**Table 20. Impact Assessment of increased demand for improved housing and schools**

Impact	Increased demand for improved housing and schools
<b>Description</b>	<p>The impact of the proposed project on housing and schools in Henties Bay, Swakopmund and Walvis Bay will depend on the recruitment and housing policies, and shift regimes of the project. If existing residents are employed, negative impacts are unlikely and additional incomes will lead to improvements in the towns' housing stock. Negative impacts could arise if people from outside the region are employed and job seekers from all over the country arrive and stay, increasing the pressure on local housing, schools and basic municipal services.</p> <p>Additionally, if there is no cumulative increase in staffing on top of that which already needed for the Cape Cross salt mining operations then this impact will not be realised.</p> <p>Three scenarios are anticipated:  Option 1: Employees live in Henties Bay  Option 2: Mile 68 accommodation (construction and operational phases)  Option 3: Haulage drivers reside in any three coastal towns</p> <p><b>Option 1: Employees live in Henties Bay</b>  The salt mine at Cape Cross is only 45km north of Henties Bay so all mine &amp; processing employees could live in Henties Bay and commute on a daily basis if they worked an eight or ten hour shift. However, if Gecko runs twelve hour shifts, this additional travelling time carries increased risk of accidents at work as workers have little time to rest and relax.</p> <p>Henties Bay has an oversupply of higher income serviced erven and housing for potential use by the 3 management &amp; senior technical staff required to operate the mine and plant. Little or no significant impact is expected in that housing bracket even if senior staff are recruited from other places.</p> <p>Lower-skilled employees are likely to stay in Omdel or the informal settlement where there is already a shortage of housing. The long-term employment</p>

		<p>prospects offered by the proposed project will increase their ability to buy a reasonable erf (plot) and/or house in one of the new lower/middle income extensions planned by the government. If employees are recruited from among existing residents in the town, it will not add additional housing pressure to the town and they are likely to participate in improving the housing stock.</p> <p><b>Option 2: Camp accommodation at Mile 68</b>                  With a 12 hour shift, the use of site-based accommodation would have safety advantages. Construction of facilities for shift workers would be advantageous if the employees did not have families and all costs were covered by the company.</p> <p><b>Option 3: Haulage drivers reside in any three coastal towns</b>                  The impact on housing for the anticipated 25 truck drivers (required to haul 0.4Mta to Walvis Bay) will depend on where overnight truck depots can be established. Truck depots would need to be established in each town to enable employees to reside with their families at the end of their shifts. Recruitment from among residents of Henties Bay, Swakopmund and Walvis Bay would spread the demand for better housing. If they all stayed in Henties Bay there would be additional pressures on the shortage of housing.</p>				
<b>Impact</b>		Positive (Option 2, if they don't have families) Positive (Option 1 & 3, should the accommodation be available for employees and in the long term improvement of accommodation in Henties Bay)				
<b>Phases</b>						
<b>Construction phase</b>		<b>Operational phase</b>		<b>Decommissioning phase</b>		<b>Post closure</b>
Constructing the mine		Mining		Dismantling		Not applicable
<b>Severity</b>		Unmitigated, it is assumed that Gecko will employ people from all over Namibia which will increase the local demand for housing and schools in the three affected towns. This will have a positive impact but of only medium severity.				
<b>Duration</b>		The duration of the impact on increased housing demand is likely to be felt for several years, i.e. for medium duration, until employees have begun to invest in home ownership.				
<b>Spatial Scale</b>		The spatial scale is medium as employees would be encouraged to invest in housing at the nearby town of Henties Bay and the other coastal towns along the transport route.				
<b>Probability</b>		The probability of this impact occurring is high as most workers will want to live with their families, rather than at the mine site, unless the mine site is highly subsidized, or they do not have families.				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Unmitigated	M	M	M	M+	H	M

<b>Significance of Consequence</b>		The consequence of these positive impacts is medium as the intensity, geographic spread and duration are rated as all medium. The significance of the increased demand for housing and schools is medium because of the medium consequence and high probability of the impacts occurring.				
<b>Prevention</b>		If the project does not go ahead then the positive impacts will potentially not be realised. They may be realised from the Cape Cross salt project alone.				
<b>Recommended Mitigation Action</b>		<p>The enhancement objective is to minimise an influx of job-seekers and employees from outside the area in order to reduce the pressure on the existing housing stock and schools. The mitigation measures turn the impacts from negative to positive.</p> <p><i>The following actions need to be implemented:</i></p> <ol style="list-style-type: none"> <li>1. 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.</li> <li>2. 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.</li> <li>3. Run eight or ten hour shifts at Cape Cross which would enable all workers to reside in their own homes in Henties Bay.</li> <li>4. Only provide site housing for emergency shift supervision. (The Cape Cross Lodge has requested that these employees will have restricted movement and not be allowed to leave the camp, except when being transported to work or home).</li> </ol> <p>It is desirable that any community and social responsibility programme should focus attention on the needs of Kamwandi school in Henties Bay as it has a dire need for additional classrooms to stop the need for afternoon platoon schooling.</p>				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Mitigated	M+	M	M	M+	M	M+
<b>Significance of Consequence</b>		Medium (positive)				
<b>Confidence Level</b>		I am confident the significance will increase if a positive cumulative impact is realised, namely, that in the medium term the Mile 68 project operates at the maximum intentioned extent.				



**Table 21. Impact Assessment – conservation, eco-tourism and mining**

Impact	Competing land uses – conservation, eco-tourism and mining		
<p><b>Description</b></p>	<p>Three distinct land uses within the EPL are considered:</p> <ol style="list-style-type: none"> <li>1. Key priority conservation area – maintaining a “sense of place” is essential. Closely aligned with that is:</li> <li>2. Low impact, eco-friendly tourism – which depends on the conservation areas and historical industrial remains as draw cards.</li> <li>3. Mining for salt alongside other mineral rights holders.</li> </ol> <p><b>Land use 1: Key priority conservation areas</b></p> <p>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.</p> <p><b>Land use 2: Low impact, recreational fishing and tourism</b></p> <p>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.</p> <p><b>Land use 3: Gossow Holdings (Pty) Ltd - Mining Licence 82D,E &amp; F</b></p> <p>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 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.</p>		
<b>Impact</b>	Negative		
<b>Phases</b>			
<b>Construction phase</b>	<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>
Constructing the mine	Mining	Dismantling	Not applicable
<b>Severity</b>	<p>The mining operations will not take place in the strict conservation areas delineated by the Parks Management Committee.</p> <p>Once constructed, the proposed salt crystallisers do not generate much noise. Mining in the salt pan, tourism at Mile 72 and the ‘Dead Sea’, fishing along the beach and restricted access conservation areas have co-existed for many years. The increased mining rate and concomitant increase in processing may potentially impact on the sense of place. During night-time processing, when the wind speed has dropped, there should not be any impact on any receptors as there are none close-by. The Mile 72 camping area and the Dead Sea are far away from the salt</p>		

	<p>mining. Once the road is diverted around the salt pan the sense of place should be enhanced as the road passes far from the salt pan operations.</p> <p>Thus, the severity of the potential competing land use impact on and around the site, from the socio-economic perspective, is ranked of low severity.</p> <p>As far as sharing of the saline pan with another mineral right holder is concerned the severity is likewise low.</p>					
<b>Duration</b>	The duration of the mining impact on the other land uses will continue indefinitely for the life of mine and is therefore high.					
<b>Spatial Scale</b>	The spatial scale is low as the impact is beyond the mine site boundary but still local.					
<b>Probability</b>	The probability of this impact occurring is medium as there will only be an extension to the existing operations at this site.					
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Unmitigated</b>	<b>L</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>M</b>	<b>M</b>
<b>Significance of Consequence</b>	The consequence of increased mining production is medium, even though the severity and the spatial scale of the impact are of low intensity, because the duration is high. The significance of the impact is medium as both the consequence and probability are medium.					
<b>Prevention</b>	If the project does not go ahead then the negative impacts will remain as the other mineral rights holder will continue with their operations.					
<b>Recommended Mitigation Action</b>	<p>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.</p> <p><i>The following actions need to be implemented:</i></p> <ol style="list-style-type: none"> <li>1. Strive to minimise the disturbance to the sense of place of tourists passing by along the coastal road.</li> <li>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.</li> <li>3. Maintain good relations with the neighbouring license holder on the Mile 68 salt pan.</li> <li>4. Maintain discussions with neighbouring land users during the design and implementation stages of developing the linear infrastructures.</li> </ol>					
<b>Decommissioning Mitigation Action</b>	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					

		<p>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.</p> <p><i>The following action needs to be implemented:</i></p> <p>1. Have a stakeholder engagement plan to inform neighbours as early as possible of any possible closure.</p>				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Mitigated</b>	<b>L</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>
<b>Significance of Consequence</b>		Low				
<b>Confidence Level</b>		I am confident the significance will decrease to low if the mitigations are implemented and the dispute of the extent of operations by the other mineral rights holder will				

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.

Many positive impacts can be enhanced with careful management, and mitigation measures have been proposed which will reduce negative impacts.

The project will make a long-term contribution to the local, regional and national economy as operations could continue for many decades. It is recommended that mine and processing staff live permanently in Henties Bay and commute daily to the salt works; Shift staff could make use of the accommodation on site; This accommodation would be ideal for employees who do not have direct family who are dependent on them on a daily basis. These aspects 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. Unsafe overtaking of these very heavy haulage trucks on the coastal road where fog, undulating roads with poor road signage, may result in more road accidents. This important safety concern was assessed in the transport studies for this and the Cape Cross salt project further north.

Mining in the salt pan, tourism and restricted access conservation areas have co-existed for many years. 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.

Overall, salt mining 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 in developing on its own mining licence 210 at Cape Cross. The Mile 68 project will at the very least supplement the ML210 salt production but could cumulatively add to the overall salt production.

## 6.6 IMPACT ASSESSMENT: ROAD SAFETY

Table 22. Impact assessment of vehicles crossing the road

<b>Impact</b>		<b>Horizontal alignment: Salt works vehicular movement crossing the existing road</b>																
<b>Description</b>		Operations at Mile 68, with accompanying Salt Works vehicular movements across the existing main road, will increase the risk of 3 <sup>rd</sup> party accidents.																
<b>Impact</b>		Negative																
<b>Phases</b>		Phases during which mining activities may impact road safety are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.																
<b>Construction phase</b>		<b>Operational phase</b>	<b>Decommissioning phase</b>		<b>Post closure</b>													
<b>Severity</b>		Substantial																
<b>Duration</b>		Permanent																
<b>Spatial Scale</b>		Local																
<b>Probability</b>		Possible																
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>												
							Unmitigated	H	H	L	H	M	H					
<b>Significance of Consequence</b>		High																
<b>Prevention</b>		Possible																
<b>Recommended Mitigation Action</b>		<p>By re-routing the section of the main road, which is currently located between the crystalliser ponds and the proposed processing area, with the appropriate minimum design standards, this risk is reduced substantially though the significance is still medium.</p> <p>However, this is an improvement and so the re-routing should be seriously considered as the best mitigation.</p> <p>In addition to the horizontal alignment improvements the introduction of a wider intersection will reduce the impact further to a low significant outcome.</p> <p>Once the proposed new deviation alignment is designed (see map in <b>Figure 15</b> below), minimum design standards should be applied, as listed in <b>Error! Reference source not found.</b></p> <table border="1"> <thead> <tr> <th>Design Elements</th> <th>Desirable Standard</th> <th>Applied Standard</th> </tr> </thead> <tbody> <tr> <td><b>Horizontal Alignment:</b></td> <td></td> <td></td> </tr> <tr> <td>Design speed</td> <td>100 km/h</td> <td>100 km/h</td> </tr> <tr> <td>Minimum radius</td> <td>350 m</td> <td>500 m</td> </tr> </tbody> </table>					Design Elements	Desirable Standard	Applied Standard	<b>Horizontal Alignment:</b>			Design speed	100 km/h	100 km/h	Minimum radius	350 m	500 m
Design Elements	Desirable Standard	Applied Standard																
<b>Horizontal Alignment:</b>																		
Design speed	100 km/h	100 km/h																
Minimum radius	350 m	500 m																

		Maximum super elevation	6.0 %	6.0 %		
		<b>Vertical Alignment:</b>				
		Design speed	100 km/h	100 km/h		
		Maximum gradient	5.0 %	1.5 %		
		<b>Vertical curves:</b>				
		Minimum length	180 m	180 m		
		<b>Minimum K-value:</b>				
		Minimum crest	60	93		
		Minimum sag	36	142		
<b>Rehabilitation</b>		This would not need to happen as the new road would become permanent feature of the coastal road.				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
Mitigated	L	H	L	M	L	L
<b>Significance of Consequence</b>		Low				
<b>Confidence Level</b>		High, with independent engineering design and supervision of development				

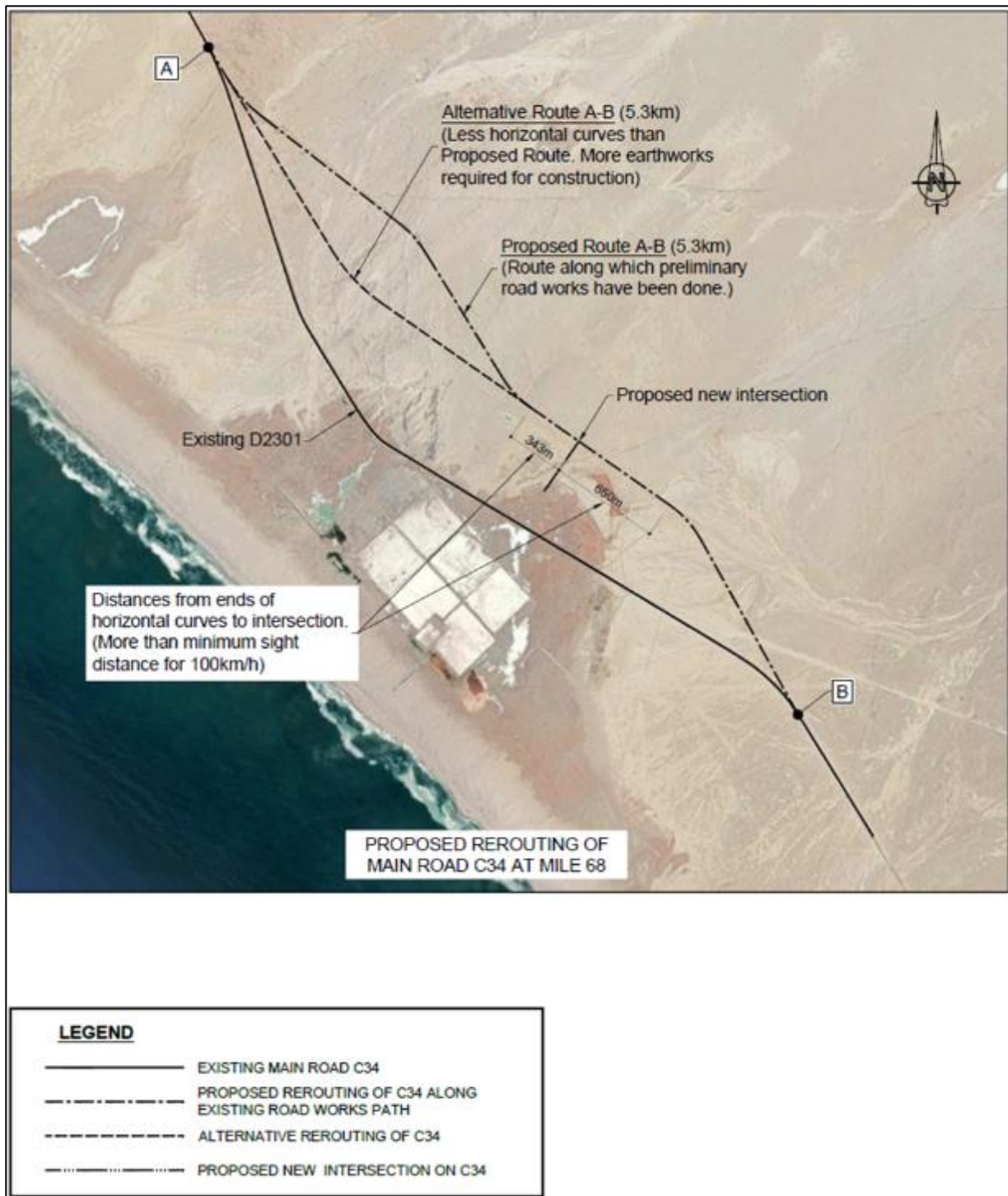


Figure 15. The new proposed re-routing of the coastal road around the pan instead of through it.

A new proposed T-Junction must be constructed on the re-routed section of the road for access to and from the site. Slip lanes must be provided at the junction for the passing of through vehicles, to facilitate acceleration and deceleration of turning vehicles. See Figure 16 below for the junction design.

The location of the proposed junction will be affected by the sight distances. The minimum sight distance for 100km/h is 300m in both directions. The extent of the impact can only be finalised with a detail design based on a detail survey.

The new roadway must have a constant roadway width with shoulders of 9.8m and be widened in junctions for passing of through vehicles, acceleration and deceleration of turning vehicles. The proposed junction must be well sign posted with warning and direction signage.

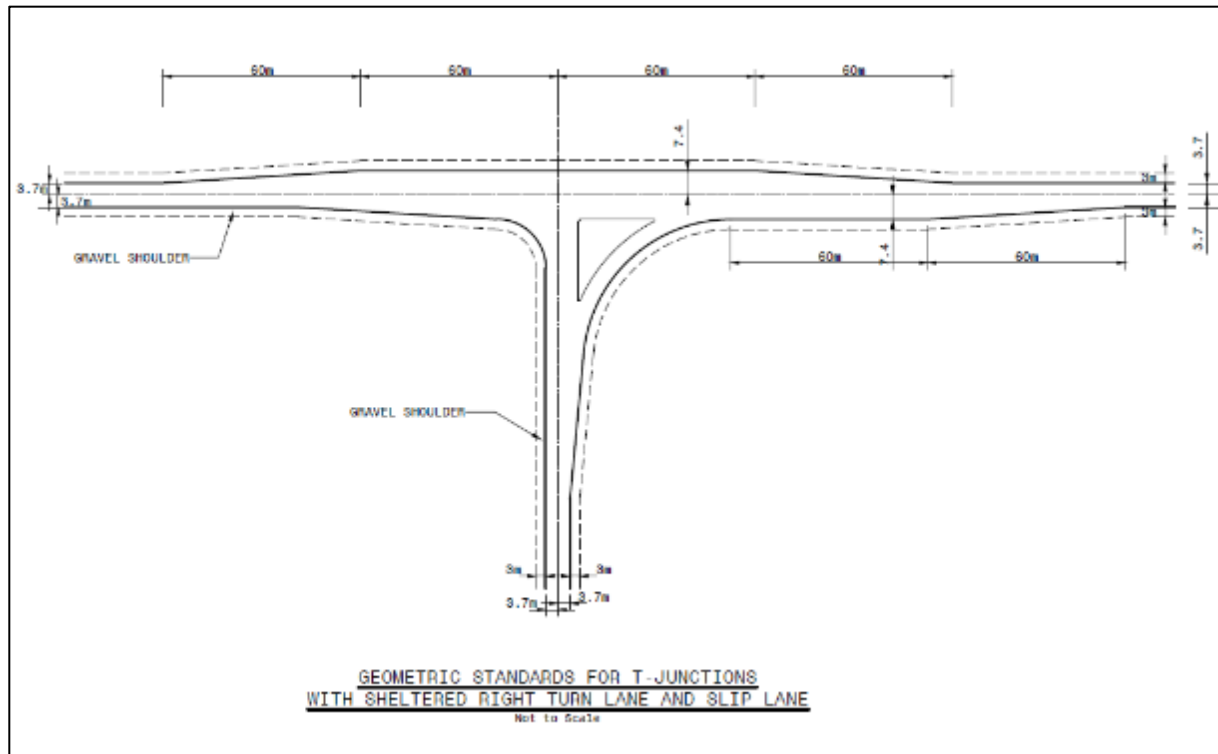
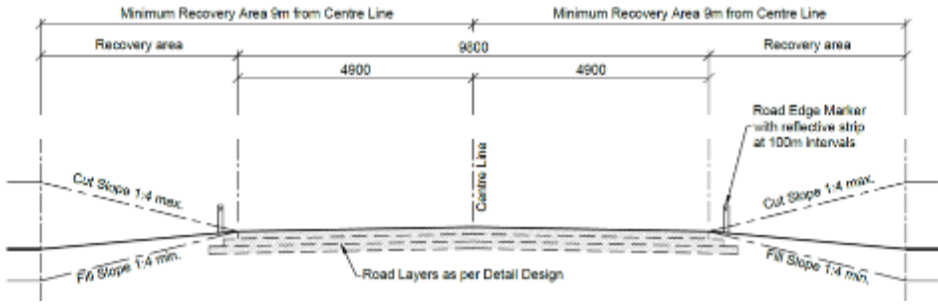


Figure 16. Typical widening at intersection to accommodate traffic for safety reasons.



**Table 23. Impact assessment of lack of road markings**

<b>Impact</b>		<b>Lack of road markings and road signs poses a risk to safety</b>				
<b>Description</b>		<p>Due to the road being a salt road there are no road markings on the road which pose a risk to driver safety.</p> <p>Drivers are therefore reliant on Road Signs which currently consist of ‘no road marking’ signs, ‘no-overtaking’ signs, general warning signs and ‘slippery when wet’ signage.</p> <p>The outcome of the assessment below where no mitigations would be considered was medium significance. Thus, this should have an influence on the decision unless it is mitigated.</p>				
<b>Impact</b>		Negative				
<b>Phases</b>		Phases during which mining activities may impact road safety are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.				
<b>Construction phase</b>		<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>		
<b>Severity</b>		Moderate				
<b>Duration</b>		Permanent				
<b>Spatial Scale</b>		Local				
<b>Probability</b>		Possible				
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
		<b>Unmitigated</b>	<b>M</b>	<b>H</b>	<b>L</b>	<b>M</b>
<b>Significance of Consequence</b>		Medium				
<b>Prevention</b>		Possible				
<b>Recommended Mitigation Action</b>		<p>A mitigation measure is to add road signage to the new proposed deviation such as warning signs at the new proposed intersections leading onto the main road as well as speed limit signs and delineators next to the road shoulders to make drivers more alert of the imminent dangers.</p> <p>A 4.9 m width per direction is proposed for this road deviation (see image plan).</p> 				
<b>Recommendation</b>						

		<ul style="list-style-type: none"> <li>➤ The new proposed deviation must be maintained to the standard width of 2 x 4.9 m = 9.8 m.</li> <li>➤ The recovery area/clear zones next to the road should be maintained at 9 m from the centre line.</li> <li>➤ Provide edge markers in the form of white plastic poles with reflective yellow strips at a minimum of 100m spacing plus additional markers at intersections and features such as signs, to prevent sand blowing onto the road and hiding the road shoulder edges.</li> <li>➤ Signs of W333 SLIPPERY WHEN WET should be indicated along the proposed new route.</li> <li>➤ The no passing sign must be augmented with supplementary information such as the reason for the restriction and the distance over which it applies.</li> </ul>				
<b>Rehabilitation</b>						
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Mitigated</b>	<b>L</b>	<b>H</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>
<b>Significance of Consequence</b>		Low				
<b>Confidence Level</b>		High, with independent engineering design and supervision of development				

**Table 24. Impact assessment of road maintenance**

<b>Impact</b>	<b>Maintenance of salt road causes frustration and risk</b>					
<b>Description</b>	The maintenance requirements of the south-bound lane with maximum axle loads will be an order of magnitude higher than that of the north-bound lane carrying empty trucks. The delays to traffic due to watering and grading can lead to frustration and risk taking by both truck drivers and the public.					
<b>Impact</b>	Negative					
<b>Phases</b>	Phases during which mining activities may impact road safety are highlighted below. The significance assessment was carried out on the operational phase which represents a long-term impact.					
<b>Construction phase</b>	<b>Operational phase</b>	<b>Decommissioning phase</b>	<b>Post closure</b>			
<b>Severity</b>	Minor deterioration					
<b>Duration</b>	Reversible over time					
<b>Spatial Scale</b>	Local					
<b>Probability</b>	Definite					
<b>Mitigation Status</b>	<b>Severity</b>	<b>Duration</b>	<b>Spatial Scale</b>	<b>Consequence</b>	<b>Probability of Occurrence</b>	<b>Significance</b>
<b>Unmitigated</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>H</b>	<b>M</b>
<b>Significance of Consequence</b>	Medium					
<b>Prevention</b>	Possible					
<b>Recommended Mitigation Action</b>	The maintenance of the new proposed deviation is not the responsibility of the proponent, but the responsibility of the Namibia Roads Authority as the owner of the road. The frequency of maintenance on the road is not known by the author, but there is a maintenance plan in place by the Namibia Roads Authority in maintaining the Salt Road on a frequent basis. What is being assessed under this heading is the impact which the maintenance operations will have on the truck drivers, and essentially the 3 <sup>rd</sup> party road users, from a Safety perspective.					
<b>Rehabilitation</b>	Operational maintenance in the long term would take care of the integrity of the road. Rehabilitation of the road reserve would have been done at the end of the construction phase of the re-routing and junction construction.					

Mitigation Status	Severity	Duration	Spatial Scale	Consequence	Probability of Occurrence	Significance
Mitigated	L	L	L	L	L	L
<b>Significance of Consequence</b>		Low				
<b>General Recommendations</b>		The maintenance operations of a salt road must be considered in the planning of the transport operations of the salt mine.				

Based on the Safety Audit conducted, the major concern is the fact that the proposed deviation will also be a salt road and that no road markings will be available. The usage of more informative traffic signs and reflective edge delineators will mitigate the imminent dangers.

It is therefore recommended that:

1. Warnings of salt roads having no road markings must be provided at both ends of the deviation and at the proposed T-junction.
2. The warning of slippery when wet should be combined with the previous warning of salt road no road markings, either as a separate warning sign with 500m intervals, or a part of a high visibility combination sign.
3. The new proposed junction should be widened to have deceleration and acceleration lanes to allow three lanes of traffic to be accommodated.
4. Edge markers (delineators) in the form of white poles with yellow reflective strips must be maintained at standard spacing and at features (e.g. corners and vertical changes).

## **7. ENVIRONMENTAL MANAGEMENT PLAN**

The Draft EMP has incorporated the recommended mitigation, rehabilitation measures and recommended monitoring that the specialists have provided. The aspects listed in the screening list in **section 3.5** that were not formally assessed have been added to the EMP and best practice for mitigating any potential impacts affecting these aspects is included. The Draft EMP can be found in **APPENDIX F**.

Monitoring of the environmental issues concerned should take place throughout the construction, operational and decommissioning phases. It is recommended that internal audits be carried out every 6 months to check compliance with the EMP. The company should ensure that all the proposed mitigation measures are being complied with and no substantial impact on the environment occurs. Any problems or faults must be brought to the attention of the management team of Gecko Salt in order to discuss ways to improve the systems in place. A bi-annual report needs to be drafted and submitted to MEFT every 6 months.



## **8. CONCLUSION**

The potential impacts of the construction and operational phases on the environment were assessed for the salt production and processing within the mining licence, the construction and operation of the brine pipeline, transport related impacts and the construction of the new section of coastal road. The existing disturbed areas within the mining licence area, along the new road route and within the road reserve of the coastal road along which the brine pipeline extends, were also taken into consideration during the assessment. The existence of these disturbed areas moderated the severity, consequence and significance of the impact even without the consideration of mitigating measures that might decrease the significance.

Due to the long-term sustainability of salt production it is unlikely that the mine would ever need to close. Fluctuations in market demand may affect the mine from time to time. Should the mining project have to be closed permanently then rehabilitation of the mining area would need to be undertaken. A mine closure plan should take into consideration the recommended measures highlighted in the assessment section of this report.

The EAP deems the project to be acceptable considering the input of the specialists and the low significance of the impacts provided the necessary mitigation measures, ongoing rehabilitation measures and monitoring are all implemented.

Another key element for the successful implementation of the project is the resolution of any land use dispute that exists between the licence holders Gecko Salt (Pty) Ltd and Gossow Holdings (Pty) Ltd.





## 9. REFERENCES

- Ashby A., 2015. Socio-Economic Baseline and Impact Assessment for the Cape Cross Salt Project, for Gecko Salt.
- Hooks, P, 2019. Flora Impact Assessment Study for Mile 68 Salt Mining Project.
- Irish, J. 2016. *Fauna Scoping Study for Gecko Salt's Cape Cross Salt Project*.
- Kinahan, J. 2019. Mile 68, Erongo Region: Archaeological Assessment of Proposed Accessory Works Site.
- Lithon Project Consultants, 2019. Traffic Safety Audit for the EIA for the Mile 68 Salt Project.
- Mendelssohn, J., Jarvis, A., Roberts, C. & Robertson, T., 2002. Atlas of Namibia: a portrait of the land and its people. Windhoek: Spearhead Press.
- Potgieter, H., 2019. Vertebrate Fauna Impact Assessment Study for Mile 68 Salt Mining Project.
- Pulfrich, A. 2020. Marine Ecology Specialist Statement: Environmental Impact Assessment for Salt Mining within EPL4426, Erongo Region.
- Toerien, D.K. 1964. *Verslag oor Soutpotensiaal van Die Weskus Noord van Swakopmund, Suidwes Afrika*; Unpublished Report.

**10. APPENDIX A****CURRICULUM VITAE OF ENVIRONMENTAL ASSESSMENT  
PRACTITIONER – PHILIP NIGEL HOOKS****PHILIP HOOKS**

Swakopmund

Tel: 081 127 9936

Email:

LinkedIn: [www.linkedin.com/in/philip-hooks-50268156](http://www.linkedin.com/in/philip-hooks-50268156)**PROFILE**

---

A highly driven and collaborative **Management Professional** who has successfully completed numerous projects and activities and gained a wealth of exposure across environmental management, having worked in key sectors. A hardworking and reliable individual who has numerous strengths and knowledge including a thorough understanding of regulations and expertise in ensuring compliance as well as highly effective team management skills who would enhance any forward thinking organisation.

**KEY SKILLS**

---

- Wealth of environment management experience
- Environmental impact assessments
- Development and implementation of environmental management plans
- Exploration and mining sector experience
- Auditing expertise
- Extensive project management exposure
- Exceptional management and leadership skills
- Complex problem solving skills
- Naturally hardworking and reliable
- Driven by international best practice and compliance
- Stakeholder engagement
- Negotiation and influential skills

**EXPERIENCE**

---

2018 – 2019                      **Environmental Consultant** – Self-employed

**Key Responsibilities:**

- I currently lead an EIA for a salt mining clearance application; assist on another EIA for an exploration application; report writing for mining and exploration licences for renewal clearance requirements.

2015 – 2018                      **Environmental Specialist** – Gecko Namibia

**Key Responsibilities:**

- I oversaw all environmental matters for the group, from compliance and auditing to implementation, monitoring and reporting. My services were outsourced for EIAs

2012 – 2014                      **Environmental Scientist** – Geo Pollution Technologies

**Key Responsibilities:**

- I undertook Environmental Impact Assessments and developed industry specific Environmental Management Plans (EMPs)

2011                                      **Health Safety Environment and Radiation Training Officer** – Rio Tonto

1997 – 2011 **Teacher and School Principal** – Swakopmund Christian Academy

**Key Responsibilities:**

- I taught Science and Mathematics for students age 11 to 16 (Grade 6 to 10)

1995 – 1996 **High School Teacher** – Karibib Private School

**Key Responsibilities:**

- I taught Physical Science, Biology and Mathematics

## **ENVIRONMENTAL MANAGEMENT SKILLS AND PROJECTS**

---

2015 – 2018

- Air quality monitoring, Forest tree surveys, Water quality monitoring, Performance audits, Coordinate environmental consultants, Plan budgets, Compile biannual environmental reports, Implement EMPs for operational projects, Develop management systems, Conduct awareness training
- at Okorusu Mine, Okanjande Mine, EPL4167 (Cape Cross Salt Project), EPL4346 (Gecko Cobalt Mining)

2012 – 2014

- Seawater quality monitoring for Namibian Ports Authority, Develop & manage the ocean monitoring programme for Erongo Desalination Plant, Fuel station pollution surveys, Workshop facilitation
- for Etosha Fishing Company, Namibian Ports Authority – Walvis Bay Harbour, Erongo Desalination Plant, Langer Heinrich & Rossing Mine & the Ministry of Fisheries and Marine Resources

## **ENVIRONMENTAL IMPACT ASSESSMENT SKILLS AND PROJECTS**

---

- Environmental impact assessment, Project registration, Site assessment, GIS, Legal review, Drafting environmental statements, Stakeholder engagement, Public meeting facilitation, Project management, Develop environmental management plans

2015 – 2018 **Prospecting Licences, Mining licences and Mining Claims**

- for Reptile Uranium Namibia, Gecko Rare Metal Mining, Gecko Gold Mining, Gecko Salt, Swakopmund Salt Company

2013 – 2014 **Fuel tank farm, Fuel retail facility, Harbour dredging**

- for Natura Energy, Tidal Wave Investments, Walvis Bay & Luderitz Namibia Ports Authority

2012 – 2013 **Marine impacts of bitterns discharge, Power line re-routing, Fuel Depot Tank Farm**

- Rezoning Heavy Fuel Oil Boiler Replacement Fuel Bunkering, Liquid petroleum gas bulk storage facility
- for Walvis Bay Salt, Namdeb, Engen, Vivo Energy, Merlus Fishing, Etosha Fishing, Puma, Manica and Corridor Gas & Oil Terminal

## **QUALIFICATIONS AND PROFESSIONAL DEVELOPMENT**

---

2012 – 2014 **University of Free State, South Africa, Magister (Environmental Management)**

1994 University of Cape Town, South Africa, Diploma of Education (Secondary – Biology & General Science)  
1992 University of Cape Town, South Africa, BSc (Hons) (Botany-Ecology)  
1989 – 1991 University of Cape Town, South Africa, BSc Botany (Environmental & Geographical Science)

## **ADDITIONAL INFORMATION**

---

**Licence:** Full and clean driving licence

**IT Skills:** Microsoft Office, GIS software (ArcMap, Manifold, DRN GPS)

**Interests:** I have a keen interest in nature and enjoy walking and hiking in the wild. I spend time serving at my church outside of work time.

## **REFERENCES AVAILABLE UPON REQUEST**

---

11. APPENDIX B

COPY



18 February 2019

The Mining Commissioner  
Ministry of Mines and Energy  
Private Bag 13297  
Windhoek  
Namibia



Cc  
The Environmental Commissioner  
Directorate of Environmental Affairs  
Ministry of Environment & Tourism  
Private Bag 13506  
Windhoek  
Namibia

Dear Sir,

RE: APPLICATION REGISTRATION FOR AN ENVIRONMENTAL CLEARANCE CERTIFICATE FOR MINING SALT WITHIN EPL4426

1. This is an application made in terms of Section 32 of the Environmental Management Act, 7 of 2007 ("the Act") for an Environmental Clearance Certificate in respect of intention to mine salt from the Mile 68 salt pans within Exclusive Prospecting License 4426.
2. We attach hereto the duly completed **Form 1 (Annexure A)**, duly stamped in the amount of N\$300,00, representing the prescribed fee.
3. **Annexure B** renders a map showing the location of the project as well as the layout of the planned infrastructure.

Yours faithfully

Acknowledge receipt

**Oliver Krappmann**  
Director Gecko Namibia

Name: Anna Oudeon  
Position: Private Secretary  
Date: 2019/02/19

Attachments:

**Annexure A:** Form 1 Application for Environmental Clearance Certificate

**Annexure B:** Map of the project infrastructure layout and location

**COPY**

No. 4878

Government Gazette 6 February 2012

23

ANNEXURE I  
FORMS

Form 1



REPUBLIC OF NAMIBIA

ENVIRONMENTAL MANAGEMENT ACT, 2007

(Section 32)

APPLICATION FOR ENVIRONMENTAL CLEARANCE CERTIFICATE

**Gecko Salt Mile 68 Project**



**PART A: DETAILS OF APPLICANT**

1. Name: (person or business)	<b>Gecko Salt (Pty) Ltd</b>
2. Business Registration / Identity No. (if applicable)	<b>2007/339</b>
3. Correspondence Address:	<b>PO Box 81307, Olympia, Windhoek</b>
4. Name of Contact Person:	<b>Oliver Krappmann</b>
5. Position of Contact Person:	<b>Director Geology Gecko Group of Companies</b>
6. Telephone No.:	<b>(061) 225826</b>
7. Fax No:	<b>(061) 225304</b>
8. E-mail Address: (if any)	<b><u>oliver@gecko.na</u></b>

Tick (  ) the appropriate box



**PART B: SCOPE OF THE ENVIRONMENTAL CLEARANCE CERTIFICATE**

1. The environmental clearance certificate is for:

Mining Salt from the saltpan at Mile 68


2. Details of the activity(s) covered by the environmental clearance certificate:

[Note: Please attach plans to show the location and scope of the designated activity(s), and use additional sheets if necessary]

**Title of Activity:** Mining salt within the saltpan at Mile 65 within EPL4426  
**Nature of Activity:** Mining salt  
**Location of Activity:** Mile 68 saltpan along coast north of Henties Bay (see attached map)  
**Scale and Scope of Activity:** Linear infrastructure development, pumping salt brine from Cape Cross saltpan from within mining licence 210; constructing and maintaining crystallisers within the saltpan; harvesting salt from the crystallisers; processing salt at a plant at Mile 68; haulage of salt products; discharge of bitterns onto the beach at Mile 68 (see attached map).

**PART C: DECLARATION BY APPLICANT**

I hereby certify that the particulars given above are correct and true to the best of my knowledge and belief. I understand the environmental clearance certificate may be suspended, amended or cancelled if any information given above is false, misleading, wrong or incomplete.

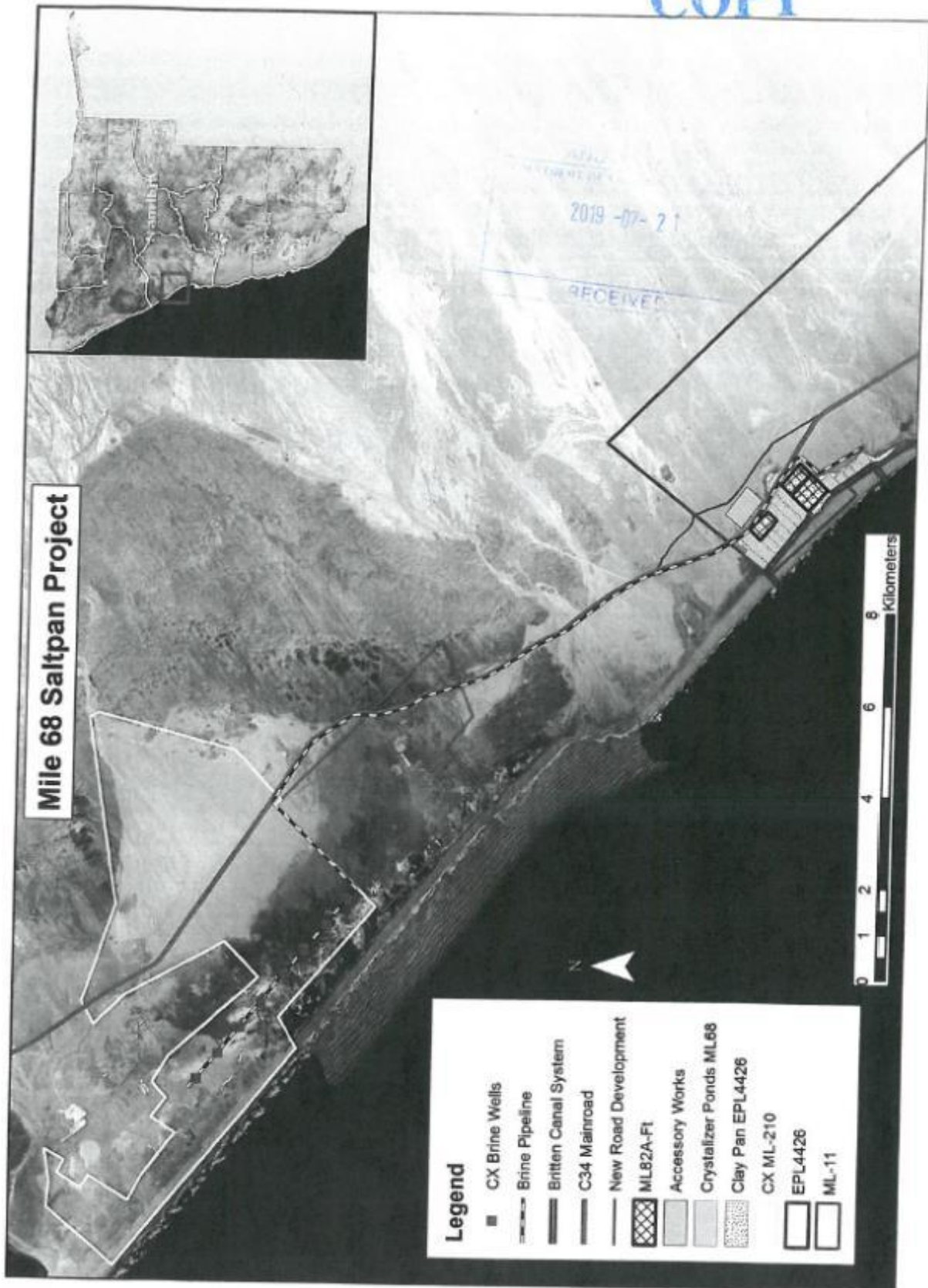
 \_\_\_\_\_ Oliver Krappmann \_\_\_\_\_ Geologist  
Signature of Applicant Full Name in Block Letters Position

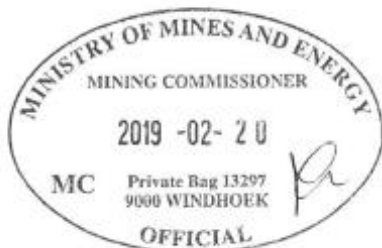
on behalf of Gedco Salt (Pty) Ltd \_\_\_\_\_ 19 Feb 2019  
Date





COPY





REPUBLIC OF NAMIBIA



**PRO-FORMA ENVIRONMENTAL CONTRACT**

WHEREAS the Applicant/ Company referred to below, has been notified under section 48(4) of the Minerals (prospecting and Mining) Act, 1992 that the Minister of Mines and Energy is prepared to grant the applicant a \_\_\_\_\_ subject to certain terms and conditions and;

WHEREAS such terms and conditions include the condition precedent that the applicant enters into an Environmental Contract with the Government of Namibia;

IT is hereby agreed as follows:

1. PARTIES.

The parties to this contract are: Gedo Salt (Pty) Ltd  
 (hereinafter referred to as the "Holder") being the holder of ~~Non Exclusive Prospecting Licence/ Exclusive Prospecting Licence/ Reconnaissance License/ Mining Claim(s)/ Mining License/ (delete those not applicable)~~  
 no EPL 4426

on the one hand, and THE GOVERNMENT OF NAMIBIA  
 (Hereinafter referred to as "the Government")

duly represented by:  
 THE MINISTRY OF ENVIRONMENT & TOURISM (MET)  
 and THE MINISTRY OF MINES & ENERGY (MME)

on the other.

2. GENERAL OBLIGATIONS.

- 2.1 The provisions contained in this contract are in addition to and do not detract from any obligations which the Holder may have under the Minerals (Prospecting and Mining) Act, 1992 (the Act).
- 2.2 The Holder recognises that its prospecting / mining operations may have significant impacts on the environment. Accordingly the Holder undertakes that during the course of its operations it will take every practicable step necessary to ensure the mitigation of such impacts. In doing so it will liaise with the MET and MME as provided for in 3.3 and 4 below.

*OR*

- 2.3. In particular the Holder will undertake necessary and adequate steps to ensure that environmental damage is reduced to a minimum and prevented, as is practicable.
- 2.4. Should the Holder not carry out its environmental obligations it shall be liable for the environmental damage that may result. In this regard the Government reserves the right to:
- 2.4.1 demand at any time financial or other guarantees to restore the environment or mitigate environmental damage which has, or which may occur, as a result of the Holder's activities;
  - 2.4.2 itself undertake such mitigatory or restorative measures and to recover the costs thereof from the Holder;
  - 2.4.3 claim compensation for environmental damage, which may have been brought about by the Holder's activities.
- 2.5. The Holder shall on completion or suspension of its operations, ensure that the impact on the environment is minimised and that every reasonable and practicable step is undertaken to ensure that the environment is left in a reasonable state. The provisions of clause 2.4 apply mutatis mutandis to environmental damage evident after prospecting, mining or other operations have been suspended or completed.
- 2.6. The Holder acknowledges that should it apply for a mining licence in consequence of its prospecting or other operations, it will have to comply with Namibia's National Environmental Assessment Policy (Directorate of Environmental Affairs, Jan, 1995) and that this will entail the carrying out of an Environmental Assessment (EA).

### 3. THE ENVIRONMENTAL CONDITIONS

- 3.1. In accordance with section 68(f) of the Act, which provides that an application for a licence shall contain particulars of the existing condition of the environment, an estimate of the effect which the proposed operations may have, and the proposed steps to be taken to prevent or minimise such effect, the Holder has attached Environmental Conditions marked Appendix A.
- 3.2. The Holder acknowledges that once the MET and MME has determined that the information furnished in Appendix A is satisfactory, it will form part of this contract.
- 3.3. The Holder warrants that the information contained in Appendix A is to the best of its knowledge and belief true and correct and that it will notify the Government of any material changes therein. Should there be such material changes, the Government reserves the right to re-negotiate the terms and conditions of this agreement.

ORC

4. COMPLIANCE AND NOTIFICATION

- 4.1 The Holder acknowledges that the reports, which it is obliged to furnish to the MME (which is provided for in the notice from the office of the Mining Commissioner under section 48(4) of the Act) will include an Environmental Report.
- 4.2 The Holder acknowledges that officials from the MME and/or the MET may at any time conduct a compliance and/or performance inspection of its operations.
- 4.3 The Holder will keep records of its environmental performance and make these available to the officials referred to in 4.2.

SIGNED AT Windhoek on this 19<sup>th</sup> day of February 2019 2013

For the Holder: .....  
(duly authorised thereto)

For the Government of Namibia: .....  
Mr. E. Shivolo  
Mining Commissioner  
Ministry of Mines and Energy

and

.....  
Mr. Teofilus Nghitila  
Environmental Commissioner  
Ministry of Environment and Tourism

2019-02-21

RECEIVED  
2019-02-21  
DEPARTMENT OF ENVIRONMENTAL AFFAIRS





# BACKGROUND INFORMATION DOCUMENT

ENVIRONMENTAL IMPACT ASSESSMENT FOR SALT MINING AT  
MILE 68 WITHIN EXCLUSIVE PROSPECTING LICENCE 4426,  
ERONGO REGION



Prepared by Philip Hooks

March 2019



## TABLE OF CONTENTS

<u>1</u>	<u>Introduction</u> .....	145
<u>2</u>	<u>Background Information</u> .....	145
<u>3</u>	<u>Project Motivation</u> .....	150
<u>4</u>	<u>Project Description</u> .....	151
	<u>Construction Phase Activities</u> .....	37
	<u>Operational Phase Activities</u> .....	39
	<u>Decommissioning Phase Activities</u> .....	41
<u>5</u>	<u>EIA Process</u> .....	153
	<u>Possible Environmental, Social and Cultural Impacts of the Project</u> .....	153
	<u>Public Participation</u> .....	154



## INTRODUCTION

Gecko Salt (Pty) Ltd (Gecko) holds Exclusive Prospecting Licence (EPL) number 4426, situated along the coast, approximately 20 kilometres north of Henties Bay, i.e. Mile 68. Gecko plans to produce salt, an industrial mineral, from salt crystallisers to be constructed within a salt pan at this location. Another company, Gossow Holdings, holds the rights to mine within the pan as well. Another EPL lies to the north of EPL4426 covering part of the northern extension of the Mile 68 salt pan. Figure 1 renders a map of the project location and proposed salt pan infrastructure, neighbouring mining licences, salt processing area, brine pipeline from Cape Cross salt pan and a new road development.

Gecko has commenced with an Environmental Impact Assessment (EIA) process based on the requirements of the Environmental Management Act (Act. No. 7 of 2007) and associated EIA regulations Government Notice (GN) No. 29 and 30. An Environmental Clearance Certificate (ECC) for the construction and operation of the proposed mining and processing activities is required and thus and EIA application with associated support documents need to be developed for submission to the Ministry of Mines and Energy (MME), as the Competent Authority. MME will review the application, including the relevant reports and submit their comments to the Ministry of Environment and Tourism (MET) for the review and decision. A mining licence (ML) application lodged with MME will be made in parallel to this EIA process.

The EIA reports, including an Environmental Management Plan (EMP), will enable MME and MET to make an informed decision regarding the proposed development from an environmental perspective. An assessment of the potential impacts will be undertaken to determine the significance of the activities associated with the construction, operational and decommissioning phases of the proposed project on the environment.

The aim of this background information document (BID) is to:

- Inform I&APs about the proposed salt mining project at Mile 68;
- Provide Interested and Affected Parties (I&APs) the opportunity to register in the public participation process;
- Explain the EIA process being followed;
- Explain how I&APs can share any comments, issues or concerns related to the proposed development. This will provide the consultant with additional information which should be taken into account in the identification of environmental aspects and the assessment of potential impacts.

## BACKGROUND INFORMATION

Gecko recently received environmental clearance for its salt mining project on the Cape Cross salt pan, which located about 15 kilometres north of Mile 68's salt pan, and submitted an application for a Mining Licence to the MME. The planned Mile 68 salt mining project provides similarly ideal conditions for constructing crystallisers for mining salt.

Approximately 15 rectangular constructed crystallisers are to be constructed upon the surface of the pan. The Mile 68 salt pan does not have a large rock salt and brine reservoir like that at Cape Cross salt pan. Abstraction of the brine from within the Mile 68 salt pan for salt crystallisation is not sustainable. It will result in the rapid dissolution of the existing rock salt under the surface of the salt pan and cause widespread subsidence of the constructed crystallisers thereby impacting the integrity of the crystallisers. Thus, a pipeline conveying saturated brine from the Cape Cross salt pan is planned for further processing at the proposed Mile 68 crystallisers. Cape Cross salt pan is a large pan with many salt mineral licence holders utilising the pan. By importing brine from the Cape Cross salt pan, the integrity of the Mile 68 salt pan's substrate will be conserved. The brine will be sourced from within Gecko Salt's ML210 at Cape Cross. The pipeline route will pass through the Swakomund Salt Company's

ML11 from ML210. **Error! Reference source not found.** renders an image of the Cape Cross salt pan and Mile 68 salt pan with the proposed pipeline route between them.

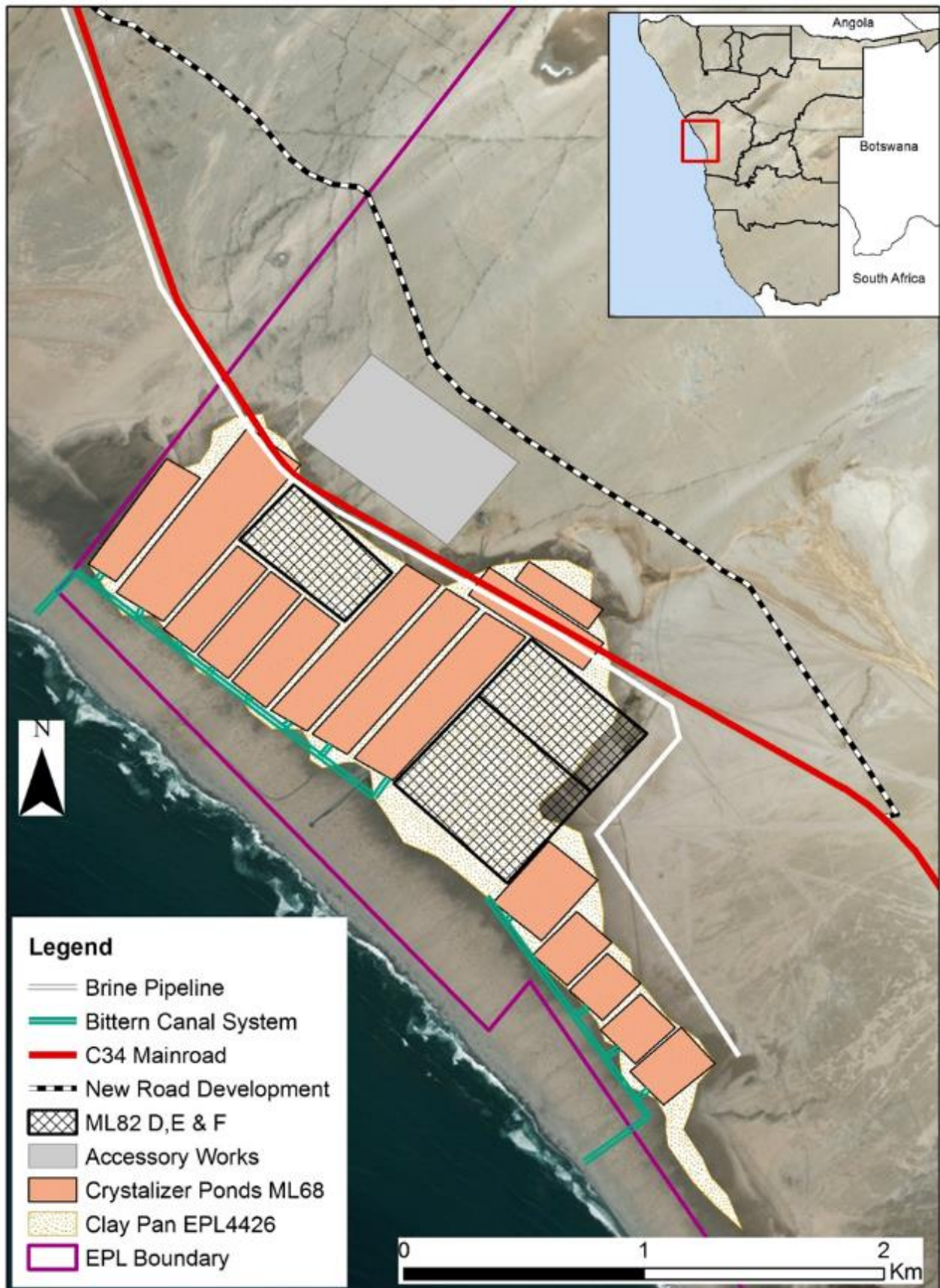


Figure 1. Location of Mining Infrastructure within and around the Mile 68 saltpan





Figure 2. Brine pipeline route from Cape Cross to the Mile 68 salt pan



Hummock Dunes, Salt Pan & Fisherman's Inn (photograph taken in 2015)

Figure 3. Image a View Across the Mile 68 Salt Pan from the Beach.

**The Mile 68 salt pan has been mined for salt intermittently during the last 80 years. Remains of those workings can still be seen. The old mine's former buildings later became the familiar and welcoming Fisherman's Inn on the eastern flank of the pan, which was frequented by fisherman and tourists alike on the journeys up the coast.**



Figure 6 gives an image of a view across the pan showing the old mine workings and the Fisherman's Inn. Since 2015, the Fisherman's Inn was closed and preparations to start up mining again were made by Gossow Holdings (Pty) Ltd. The historical extent of the Gossow mining licences are shown in the map in **Error! Reference source not found.** These mining licences are numbered ML82 D,E & F. Figure 8 renders a satellite image of the Mile 68 salt pan showing these licences and the historical mining activities within the pan spanning many decades.



Figure 4. Satellite Imagery of the Historical Salt Mining at the Mile 68 Salt Pan

Gecko Salt (Pty) Ltd began their exploration of the area in October of 2015 after the Exclusive Prospecting Licence (EPL) 4426 was granted by MME in July of the previous year.

#### ● PROJECT MOTIVATION

EPL4426 was issued to Gecko by MME for the exploration of industrial minerals (salt falls within this category of minerals). This project has the potential to contribute to the Erongo region's economy, and in doing so, will contribute to the socio-economic development of the area through the increased delivery of support services to the proposed salt mine from the Henties Bay and Swakopmund towns.

Additional employment opportunities will result from the project. General unskilled workers would be sourced from the nearest town. Skilled labour based in Swakopmund and further afield may be utilised. Skills development would result from the employment of both unskilled and skilled workers.



Indirectly the expansion of trade and industrial activity in the region and country will result from the project development and the sale of salt products both locally and internationally.

## PROJECT DESCRIPTION

The proposed project is located along the northern-central Namibian coast within the Dorob National Park. **Error! Reference source not found.**, **Error! Reference source not found.** and **Error! Reference source not found.** render maps of the project's location.

Gecko intends to apply for a Mining Licence and develop a new solar salt crystallization facility with salt washing plant and accessory works at the Mile 68 salt 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 (See Figure 2).

The proposed Mile 68 salt project includes the following components:

- Crystalliser construction and operation,
- Construction and operation of a salt processing facility,
- Pipeline construction and brine conveyance (from ML210 at Cape Cross to Mile 68),
- Bittern discharge into the sea,
- New road development,
- Power generation,
- Fuel storage,
- Security staff accommodation,
- Salt product transport.

**Error! Reference source not found.** and **Error! Reference source not found.** render maps with the layout of the various components listed above.

The following is the summary of envisaged development with primary salt production and processing activities that are expected to be undertaken by the project proponent during different project development phases.

## CONSTRUCTION PHASE ACTIVITIES

This will comprise of the following:

6. Construction of salt pan crystallisers
7. Construction of a salt processing facility (includes fuel storage and power generation facility)
8. Construction of new road
9. Construction of brine pipeline from Cape Cross salt pan

A new section of road, about 5 km long, is planned to permanently divert traffic around the new salt works to the east (see Figure 2). Construction of this road is to take place along an old existing track.

In the development and construction phase, salt crystallizers will be established on the impermeable base of the natural salt pan. The construction involves levelling and compacting the salt pan surface and the construction of impermeable sidewalls using sheeted UPVC plastic liner and clay with sand and gypsum from the salt pan's surface layer.

A PVC pipeline with a 25 cm diameter for brine transport from Cape Cross (i.e. ML210) to the Mile 68 pan (see Figure 2) will be constructed. The pipeline will follow the road reserve for the entire length between the salt pans.

Solid waste will be removed off site and taken to Henties Bay's rubbish dump. Ablution facilities will use sealed septic tanks and the sewerage taken to the Henties Bay sewerage plant periodically. No power supply infrastructure to the site is planned but electricity requirements will rely on diesel generators. Construction staff will be accommodated at the Cape Cross Gecko Salt accommodation camp. Security will be supplied on a 24-hour basis at the mine and processing plant construction sites. The support services and facilities constructed during this phase will either be removed at the end of the construction phase or incorporated into the operational phase of the project.

#### ◆ OPERATIONAL PHASE ACTIVITIES

Salt production at Mile 68 will be similar to other solar salt facilities near Swakopmund and Walvis bay and elsewhere in the world. The difference is that the Mile 68 salt works will operate from concentrated brine conveyed from Cape Cross instead of conducting a gradual evaporation process from seawater.

Pumping of brine from the large Cape Cross reservoir will ensure that brine of high salt concentration is immediately available for crystallisation at the Mile 68 evaporation pans. Concentrated brine from Cape Cross will be pumped into the shallow crystallizer pans and salt will precipitate. Magnesium and unwanted salt ions which accumulate over time in the crystallizer brine will be purged to the sea prior to harvesting the salt. The discharge of these bitterns will take place onto the beach below the highwater mark on the beach.

After allowing for solar evaporation and growth for approximately six months the new salt layer is removed by using a customized salt harvester. From the harvester the salt gets loaded directly onto dump trucks which take the raw product to the processing plant comprising of a crusher, salt wash section and bagging plant.

Salt will be transported as bulk cargo as well as in bagged form. The salt production which is planned for the Mile 68 crystallizers will fall into the overall production envelope that has been planned for Gecko Salt's Cape Cross project. Thus the eventual product haulage rates will remain within the limits that were assessed for the Cape Cross Salt Project.

#### ◆ DECOMMISSIONING PHASE ACTIVITIES

The life of the mine is unknown currently. The very large resource of rock salt and saturated brine at the nearby Cape Cross salt pan can sustain pumping of brine as envisaged for the Mile 68 operation. Solar salt production, which ultimately has the vast resource of the sea as raw material, can operate sustainably for an unlimited period.

Decommissioning activities will include the removal of infrastructure, preparation of final land forms for closure and where necessary rehabilitate the environment to baseline conditions at the commencement of the project.



It is anticipated that the proposed construction will commence within six months of receiving the ECC from the MET and the relevant permits and licences have been issued by the different regulatory bodies.

## ◆ EIA PROCESS

The EIA will be carried out as follows:

Stakeholders and Interested and Affected Parties (IAPs) have been notified regarding the project, through the national and local press and by site and public notices. A public meeting and focus group meetings as required have been arranged to provide an opportunity for stakeholders and IAPs to receive information about the project and to provide input into the EIA process. This public participation at meetings and via written correspondence is required under the laws that govern environmental protection. This initial public consultation will be followed up by a request for final public review of the Scoping Report with Assessment and Draft Environmental Management Plan (EMP).

A number of specialists will provide assessment studies or statements for integration into the EIA. These studies, assessments, statements and any other environmental baseline information will be used to assess the potential impacts of the various mining activities. Measures to offset, mitigate or prevent any potential impacts will be recommended. Monitoring of activities throughout the various phase of the project development will be suggested so that the compliance to the recommended measures can be assessed. A Scoping Report with Assessment and Draft EMP will be submitted to the public for review, as well as an additional independent EIA consultant for review. Thereafter, the documents will be submitted to the Environmental Commissioner, who will weigh up the impact assessment, recommended measures and monitoring suggestions and approve or reject the environmental clearance. If approved, the EMP (supported by the Scoping Report with Assessment and specialist studies/statements) becomes the legally binding plan to which the company must comply.

## ◆ POSSIBLE ENVIRONMENTAL, SOCIAL AND CULTURAL IMPACTS OF THE PROJECT

Impacts that could potentially arise from the proposed project include but are not limited to:

- Biodiversity impacts
  - Alteration of habitat
  - Physical destruction and general disturbance of biodiversity
  - Impact on marine ecology from bitterns discharge
- Alteration of landscape
- Air Quality
- Noise
- Surface water and groundwater bodies
- Heritage impacts
- Increased traffic volumes on public roads and safety of new road route
- Employment opportunities (permanent / temporary)
- Growth of both local and regional economy

Where the environmental impact assessment practitioner deems it necessary, specialist studies or statements will be provided for as part of the Scoping Report with Assessment.



## PUBLIC PARTICIPATION

The Environmental Impact Assessment process involves interaction with individuals and organisations who are interested in, or who could be affected by, the proposed development. The notification of the project invited IAPs to register for the project. The public meeting, focus group meetings and email correspondence provides you with an opportunity to comment and make further inquiries.

We invite all IAPs to provide in writing, any issues and suggestions regarding the proposed development. This correspondence must include:

1. Name & Surname;
2. Organization represented;
3. Position in the organization;
4. Contact details and;
5. Any direct business, financial, personal or other interest which you may have in the approval or refusal of the application.

All initial contributions, comments and concerns must be submitted by **11<sup>th</sup> April 2019**. Subsequent to the issuing of the Scoping Report with Assessment, all stakeholders and IAPs will be requested to provide comments. A 21 working day review period will be granted for this aspect of the public participation. After the review period, the Scoping Report with Assessment will be submitted to the Environmental Commissioner to apply for an ECC.

For further information, or to register as an Interested or Affected Party, please contact:

Mr. Philip Hooks (Environmental Assessment Practitioner) / E-Mail: [philip.nigel.hooks@gmail.com](mailto:philip.nigel.hooks@gmail.com)

## **Email Correspondence Inviting Coastal Management Committee members to the focus group meeting at the fisheries building on the 11<sup>th</sup> April 2019:**

Dear Kenneth,

Thank you for the update on the DT SAP document provided by Rod.

It is unfortunate that the last Public Participation meeting by the Environmental Assessment Practitioner was last week Thursday (11 April 2019). However I believe He (Phillip Hooks here carbon copied) will still receive comments for incorporation via email and other written forms as they are yet to release the draft Scoping Report for comments from Interested and Affected Parties.

I have attached the BID and PP meeting notice as propagated by the EAP Phillip Hooks.

Kind regards,

Victor Miti Libuku  
Biologist  
Integrated Coastal Zone Management (ICZM) Section  
National Marine Information and Research Centre  
Ministry of Fisheries and Marine Resources  
Tel (W): +264 64 410 1000  
Fax: +264 64 404 385

„Your efforts are only as great as the perception of your abilities” - Miti

**From:** kenneth uiseb

**Sent:** Monday, April 15, 2019 09:14

**To:** Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>; Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>

**Cc:** Holger Kolberg <[holgerk@afol.com.na](mailto:holgerk@afol.com.na)>; Anja Kreiner <[Anja.Kreiner@mfmr.gov.na](mailto:Anja.Kreiner@mfmr.gov.na)>; Amunyela, Maria Katoole GIZ NA <[maria.amunyela@giz.de](mailto:maria.amunyela@giz.de)>

**Subject:** RE: Mile 68

The plan was discussed in the MET. It is not endorsed yet but the information contained in the document is relevant, and factual and must be considered when any developments in the DT breeding areas are considered. I would also appreciate to be briefed about what this project is all about, and would also like to see any documentation to grant us an opportunity to commend or provide our input as MET.

Best regards,  
Kenneth

**From:** Braby, Rodney GIZ NA [<mailto:rodney.braby@giz.de>]

**Sent:** Monday, April 15, 2019 8:57 AM

**To:** Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>  
**Cc:** kenneth uiseb <[kenneth.uisieb@met.gov.na](mailto:kenneth.uisieb@met.gov.na)>; Holger Kolberg <[holgerk@afol.com.na](mailto:holgerk@afol.com.na)>; Anja Kreiner <[Anja.Kreiner@mfmr.gov.na](mailto:Anja.Kreiner@mfmr.gov.na)>; Amunyela, Maria Katoole GIZ NA <[maria.amunyela@giz.de](mailto:maria.amunyela@giz.de)>  
**Subject:** FW: Mile 68

Dear Victor

This is a draft of the DT SAP that was developed for MET. What has happened to it, Kenneth will know? I have copied him in as the Deputy Director Scientific Services and Holger Kolberg who is also on the MARISMA project EBSA Task Team.

I have only heard verbally about Salz Gossow rail link issue.

Best wishes  
Rod

**From:** Victor Libuku [<mailto:Victor.Libuku@mfmr.gov.na>]  
**Sent:** 15 April 2019 08:36 AM  
**To:** Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>  
**Subject:** RE: Mile 68

Hi Rod,

Thank you for this important piece of information. If there are please any documents you can share as pertaining the territory of the Damara tern and it's breeding area range they would be much appreciated.

My apologies for the late response, I was not in the office on Friday.

Regards,

Victor

**From:** Braby, Rodney GIZ NA [<mailto:rodney.braby@giz.de>]  
**Sent:** Thursday, April 11, 2019 17:06  
**To:** Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>  
**Subject:** RE: Mile 68

Really sorry, we were held up with project work and could not leave. There are important Seabird (Damara Tern) breeding areas where they propose to develop their salt works, also the competition wants to up their ante and build a railway line!

Hope there were enough people providing some guidance to the meeting. Thank you for inviting us.

**From:** Victor Libuku [<mailto:Victor.Libuku@mfmr.gov.na>]  
**Sent:** 08 April 2019 11:01 AM  
**To:** Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>  
**Subject:** RE: Mile 68

Hi Rod,

Your attendance will be appreciated.

Unfortunately I can't speak on behalf of MET, but whoever has an interest or is affected at MET may attend.

Regards,  
Victor

**From:** Braby, Rodney GIZ NA [<mailto:rodney.braby@giz.de>]  
**Sent:** Monday, April 08, 2019 10:56  
**To:** Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>  
**Subject:** RE: Mile 68

Thanks Victor

I will try to attend, who from MET can attend (I assume all new people with little historic perspective?)

Regards  
Rod

**From:** Victor Libuku [<mailto:Victor.Libuku@mfmr.gov.na>]  
**Sent:** 05 April 2019 09:28 AM  
**To:** Anja Kreiner <[Anja.Kreiner@mfmr.gov.na](mailto:Anja.Kreiner@mfmr.gov.na)>; Iina Ruben <[ynaruben25@gmail.com](mailto:ynaruben25@gmail.com)>; Nelson Meroro <[nmeroro@erongorc.gov.na](mailto:nmeroro@erongorc.gov.na)>; Cameron Kandjii <[cameron.kandjii@gmail.com](mailto:cameron.kandjii@gmail.com)>; Alexander Alexander <[jalexander2539@gmail.com](mailto:jalexander2539@gmail.com)>; Nelson Williams Meroro <[meroro04@gmail.com](mailto:meroro04@gmail.com)>  
**Cc:** Chantal Prinsloo ([accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)) <[accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)>; Chief Swakopmund Traffic (Melvin Cloete) <[mcloete@swkmun.com.na](mailto:mcloete@swkmun.com.na)>; Chief Walvis Bay Traffic (Eben Platt) <[eplatt@walvisbaycc.org.na](mailto:eplatt@walvisbaycc.org.na)>; Clifton Jacobs <[cjacobs@walvisbaycc.org.na](mailto:cjacobs@walvisbaycc.org.na)>; Daniel Lange <[erongotraffic@gmail.com](mailto:erongotraffic@gmail.com)>; David Uushona <[duushona@walvisbaycc.org.na](mailto:duushona@walvisbaycc.org.na)>; Dimari van Rensburg <[dimari@erongorc.gov.na](mailto:dimari@erongorc.gov.na)>; [ekhijarunguru@erongorc.gov.na](mailto:ekhijarunguru@erongorc.gov.na); Living Desert Tours <[tommys@iway.na](mailto:tommys@iway.na)>; Merrilyn Leippert <[leippert@iway.na](mailto:leippert@iway.na)>; Nangula Amuntenya-Amatsi <[namutenya@walvisbaycc.org.na](mailto:namutenya@walvisbaycc.org.na)>; Paulina Engelbrecht <[pengelbrecht@swkmun.com.na](mailto:pengelbrecht@swkmun.com.na)>; Peter van Ginkel <[paintball@iway.na](mailto:paintball@iway.na)>; Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>; Seblonica Kauari <[skauari@erongorc.gov.na](mailto:skauari@erongorc.gov.na)>; Simen Anderson <[simena@iway.na](mailto:simena@iway.na)>; Steve Braine <[steve@batisbirdingsafaris.net](mailto:steve@batisbirdingsafaris.net)>; [sskaseba@gmail.com](mailto:sskaseba@gmail.com); Surina Eichas (ERC CRO PA) <[farita@erongorc.gov.na](mailto:farita@erongorc.gov.na)>; Tobie Gerber <[gerber@iway.na](mailto:gerber@iway.na)>; Lovisa Hailaula <[LHailaula@walvisbaycc.org.na](mailto:LHailaula@walvisbaycc.org.na)>; [swakopcompol@gmail.com](mailto:swakopcompol@gmail.com); [mondessa@gmail.com](mailto:mondessa@gmail.com); siegfried gawiseb <[siegfried.gawiseb@met.gov.na](mailto:siegfried.gawiseb@met.gov.na)>; Eben Petrus <[EPetrus@walvisbaycc.org.na](mailto:EPetrus@walvisbaycc.org.na)>; Florensia Mutrifa <[FMutrifa@walvisbaycc.org.na](mailto:FMutrifa@walvisbaycc.org.na)>; rob davis <[rob.davis@met.gov.na](mailto:rob.davis@met.gov.na)>; Robeam Ujaha <[rujaha@swkmun.com.na](mailto:rujaha@swkmun.com.na)>; Yvonne Andima <[YAndima@walvisbaycc.org.na](mailto:YAndima@walvisbaycc.org.na)>; Chris Tempo <[Chris.Tempo@mfmr.gov.na](mailto:Chris.Tempo@mfmr.gov.na)>; ivan nel <[ivan.nel@met.gov.na](mailto:ivan.nel@met.gov.na)>; [riaan.met@gmail.com](mailto:riaan.met@gmail.com); Fina Kotze <[fkotze@walvisbaycc.org.na](mailto:fkotze@walvisbaycc.org.na)>; Peter Etsebeth <[PEtsebeth@walvisbaycc.org.na](mailto:PEtsebeth@walvisbaycc.org.na)>; Taimi Shikongo <[Taimi.Shikongo@mfmr.gov.na](mailto:Taimi.Shikongo@mfmr.gov.na)>; Ferdinand Hamukwaya <[Ferdinand.Hamukwaya@mfmr.gov.na](mailto:Ferdinand.Hamukwaya@mfmr.gov.na)>  
**Subject:** RE: Mile 68

Please find attached the public participation meeting notice for the proposed Mile 68 project, although the meeting in Henties Bay was yesterday, all interested/affected can join the meeting at fisheries on the 11<sup>th</sup> of April.

Regards,  
Victor

**From:** Anja Kreiner

**Sent:** Thursday, April 04, 2019 08:02

**To:** Iina Ruben <[ynaruben25@gmail.com](mailto:ynaruben25@gmail.com)>; Nelson Meroro <[nmeroro@erongorc.gov.na](mailto:nmeroro@erongorc.gov.na)>; Cameron Kandjii <[cameron.kandjii@gmail.com](mailto:cameron.kandjii@gmail.com)>; Alexander Alexander <[jalexander2539@gmail.com](mailto:jalexander2539@gmail.com)>; Nelson Williams Meroro <[meroro04@gmail.com](mailto:meroro04@gmail.com)>

**Cc:** Chantal Prinsloo ([accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com))

<[accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)>; Chief Swakopmund Traffic (Melvin Cloete) <[mcloete@swkmun.com.na](mailto:mcloete@swkmun.com.na)>; Chief Walvis Bay Traffic (Eben Platt) <[eplatt@walvisbaycc.org.na](mailto:eplatt@walvisbaycc.org.na)>; Clifton Jacobs <[cjacobs@walvisbaycc.org.na](mailto:cjacobs@walvisbaycc.org.na)>; Daniel Lange <[erongotraffic@gmail.com](mailto:erongotraffic@gmail.com)>; David Uushona <[duushona@walvisbaycc.org.na](mailto:duushona@walvisbaycc.org.na)>; Dimari van Rensburg <[dimari@erongorc.gov.na](mailto:dimari@erongorc.gov.na)>; [ekhijarunguru@erongorc.gov.na](mailto:ekhijarunguru@erongorc.gov.na); Living Desert Tours <[tommys@iway.na](mailto:tommys@iway.na)>; Merylyn Leippert <[leippert@iway.na](mailto:leippert@iway.na)>; Nangula Amuntenya-Amatsi <[namutenya@walvisbaycc.org.na](mailto:namutenya@walvisbaycc.org.na)>; Paulina Engelbrecht <[pengelbrecht@swkmun.com.na](mailto:pengelbrecht@swkmun.com.na)>; Peter van Ginkel <[paintball@iway.na](mailto:paintball@iway.na)>; Rod Braby <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>; Seblonica Kauari <[skauari@erongorc.gov.na](mailto:skauari@erongorc.gov.na)>; Simen Anderson <[simena@iway.na](mailto:simena@iway.na)>; Steve Braine <[steve@batisbirdingsafaris.net](mailto:steve@batisbirdingsafaris.net)>; [sskaseba@gmail.com](mailto:sskaseba@gmail.com); Surina Eichas (ERC CRO PA) <[farita@erongorc.gov.na](mailto:farita@erongorc.gov.na)>; Tobie Gerber <[gerber@iway.na](mailto:gerber@iway.na)>; Victor Libuku <[Victor.Libuku@mfm.gov.na](mailto:Victor.Libuku@mfm.gov.na)>; Lovisa Hailaula <[LHailaula@walvisbaycc.org.na](mailto:LHailaula@walvisbaycc.org.na)>; [swakopcompol@gmail.com](mailto:swakopcompol@gmail.com); [mondessa@gmail.com](mailto:mondessa@gmail.com); siegfried gawiseb <[siegfried.gawiseb@met.gov.na](mailto:siegfried.gawiseb@met.gov.na)>; Eben Petrus <[EPetrus@walvisbaycc.org.na](mailto:EPetrus@walvisbaycc.org.na)>; Florensia Mutrifa <[FMutrifa@walvisbaycc.org.na](mailto:FMutrifa@walvisbaycc.org.na)>; rob davis <[rob.davis@met.gov.na](mailto:rob.davis@met.gov.na)>; Robeam Ujaha <[rujaha@swkmun.com.na](mailto:rujaha@swkmun.com.na)>; Yvonne Andima <[YAndima@walvisbaycc.org.na](mailto:YAndima@walvisbaycc.org.na)>; Chris Tempo <[Chris.Tempo@mfm.gov.na](mailto:Chris.Tempo@mfm.gov.na)>; ivan nel <[ivan.nel@met.gov.na](mailto:ivan.nel@met.gov.na)>; [riaan.met@gmail.com](mailto:riaan.met@gmail.com); Fina Kotze <[fkotze@walvisbaycc.org.na](mailto:fkotze@walvisbaycc.org.na)>; Peter Etsebeth <[PEtsebeth@walvisbaycc.org.na](mailto:PEtsebeth@walvisbaycc.org.na)>; Taimi Shikongo <[Taimi.Shikongo@mfm.gov.na](mailto:Taimi.Shikongo@mfm.gov.na)>; Victor Libuku <[Victor.Libuku@mfm.gov.na](mailto:Victor.Libuku@mfm.gov.na)>; Ferdinand Hamukwaya <[Ferdinand.Hamukwaya@mfm.gov.na](mailto:Ferdinand.Hamukwaya@mfm.gov.na)>

**Subject:** Mile 68

Dear all,

Attached please find the BID for the proposed salt mining at Mile 68. There is a public meeting in Henties Bay this Friday. Those who cannot make it to Henties Bay but are interested to meet with the environmental consultants on the project are welcome to join the brief (max 1 hour) meeting on Thursday 11 April, 16:00 at the fisheries in Swakopmund.

Regards  
Anja

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The

Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia.

Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia.

Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

---

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH;  
Sitz der Gesellschaft Bonn und Eschborn/Registered offices Bonn and Eschborn, Germany;  
Registergericht/Registered at Amtsgericht Bonn, Germany; Eintragungs-Nr./Registration no. HRB 18384 und/and Amtsgericht Frankfurt am Main, Germany; Eintragungs-Nr./Registration no. HRB 12394;  
USt-IdNr./VAT ID no. DE 113891176;  
Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Martin Jaeger, Staatssekretaer/State Secretary;  
Vorstand/Management Board: Tanja Goenner (Vorstandssprecherin/Chair of the Management Board), Dr. Christoph Beier (Stellv. Vorstandssprecher/Vice-Chair of the Management Board)

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia.

Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

---

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH;  
Sitz der Gesellschaft Bonn und Eschborn/Registered offices Bonn and Eschborn, Germany;  
Registergericht/Registered at Amtsgericht Bonn, Germany; Eintragungs-Nr./Registration no. HRB 18384 und/and Amtsgericht Frankfurt am Main, Germany; Eintragungs-Nr./Registration no. HRB 12394;  
USt-IdNr./VAT ID no. DE 113891176;  
Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Martin Jaeger, Staatssekretaer/State Secretary;  
Vorstand/Management Board: Tanja Goenner (Vorstandssprecherin/Chair of the Management Board), Dr. Christoph Beier (Stellv. Vorstandssprecher/Vice-Chair of the Management Board)

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia.

Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

---

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH;  
Sitz der Gesellschaft Bonn und Eschborn/Registered offices Bonn and Eschborn, Germany;  
Registergericht/Registered at Amtsgericht Bonn, Germany; Eintragungs-Nr./Registration no. HRB 18384 und/and Amtsgericht Frankfurt am Main, Germany; Eintragungs-Nr./Registration no. HRB 12394;  
USt-IdNr./VAT ID no. DE 113891176;  
Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Martin Jaeger, Staatssekretaer/State Secretary;  
Vorstand/Management Board: Tanja Goenner (Vorstandssprecherin/Chair of the Management Board), Dr. Christoph Beier (Stellv. Vorstandssprecher/Vice-Chair of the Management Board)

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia.

Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia.

Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

## 2 Attachments

### Advert Notice & BID



kenneth uiseb <kenneth.uisieb@met.gov.na>

Apr 15,  
2019, 8:55  
AM

to Victor, Rodney, Holger, Anja, Maria, me, Philip

Thank you Victor for that feedback! We are most likely to see the EIA for review when it is submitted to MET – so no worries at this stage in terms of inputs from us.

Best regards,  
Kenneth



**From:** Victor Libuku  
**Sent:** Monday, April 15, 2019 9:43 AM  
**To:** kenneth uiseb <[kenneth.uisieb@met.gov.na](mailto:kenneth.uisieb@met.gov.na)>; Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>  
**Cc:** Holger Kolberg <[holgerk@afol.com.na](mailto:holgerk@afol.com.na)>; Anja Kreiner <[Anja.Kreiner@mfmr.gov.na](mailto:Anja.Kreiner@mfmr.gov.na)>; Amunyela, Maria Katoole GIZ NA <[maria.amunyela@giz.de](mailto:maria.amunyela@giz.de)>; Philip Hooks <[philip.nigel.hooks@gmail.com](mailto:philip.nigel.hooks@gmail.com)>; Philip Hooks <[philip.hooks@gecko.na](mailto:philip.hooks@gecko.na)>  
**Subject:** RE: Mile 68

Dear Kenneth,

Thank you for the update on the DT SAP document provided by Rod. It is unfortunate that the last Public Participation meeting by the Environmental Assessment Practitioner was last week Thursday (11 April 2019). However I believe He (Phillip Hooks here carbon copied) will still receive comments for incorporation via email and other written forms as they are yet to release the draft Scoping Report for comments from Interested and Affected Parties.

I have attached the BID and PP meeting notice as propagated by the EAP Phillip Hooks.

Kind regards,

Victor Miti Libuku  
Biologist  
Integrated Coastal Zone Management (ICZM) Section  
National Marine Information and Research Centre  
Ministry of Fisheries and Marine Resources  
Tel (W): +264 64 410 1000  
Fax: +264 64 404 385  
„Your efforts are only as great as the perception of your abilities” - Miti

**From:** kenneth uiseb  
**Sent:** Monday, April 15, 2019 09:14  
**To:** Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>; Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>  
**Cc:** Holger Kolberg <[holgerk@afol.com.na](mailto:holgerk@afol.com.na)>; Anja Kreiner <[Anja.Kreiner@mfmr.gov.na](mailto:Anja.Kreiner@mfmr.gov.na)>; Amunyela, Maria Katoole GIZ NA <[maria.amunyela@giz.de](mailto:maria.amunyela@giz.de)>  
**Subject:** RE: Mile 68

The plan was discussed in the MET. It is not endorsed yet but the information contained in the document is relevant, and factual and must be considered when any developments in the DT breeding areas are considered. I would also appreciate to be briefed about what this project is all about, and would also like to see any documentation to grant us an opportunity to commend or provide our input as MET.

Best regards,  
Kenneth

**From:** Braby, Rodney GIZ NA [<mailto:rodney.braby@giz.de>]  
**Sent:** Monday, April 15, 2019 8:57 AM  
**To:** Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>  
**Cc:** kenneth uiseb <[kenneth.uisieb@met.gov.na](mailto:kenneth.uisieb@met.gov.na)>; Holger Kolberg <[holgerk@afol.com.na](mailto:holgerk@afol.com.na)>; Anja Kreiner <[Anja.Kreiner@mfmr.gov.na](mailto:Anja.Kreiner@mfmr.gov.na)>; Amunyela, Maria Katoole GIZ NA <[maria.amunyela@giz.de](mailto:maria.amunyela@giz.de)>  
**Subject:** FW: Mile 68

Dear Victor

This is a draft of the DT SAP that was developed for MET. What has happened to it, Kenneth will know? I have copied him in as the Deputy Director Scientific Services and Holger Kolberg who is also on the MARISMA project EBSA Task Team.

I have only heard verbally about Salz Gossow rail link issue.

Best wishes  
Rod

**From:** Victor Libuku [<mailto:Victor.Libuku@mfmr.gov.na>]  
**Sent:** 15 April 2019 08:36 AM  
**To:** Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>  
**Subject:** RE: Mile 68

Hi Rod,

Thank you for this important piece of information. If there are please any documents you can share as pertaining the territory of the Damara tern and it's breeding area range they would be much appreciated.

My apologies for the late response, I was not in the office on Friday.

Regards,

Victor

**From:** Braby, Rodney GIZ NA [<mailto:rodney.braby@giz.de>]  
**Sent:** Thursday, April 11, 2019 17:06  
**To:** Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>  
**Subject:** RE: Mile 68

Really sorry, we were held up with project work and could not leave. There are important Seabird (Damara Tern) breeding areas where they propose to develop their salt works, also the competition wants to up their ante and build a railway line!

Hope there were enough people providing some guidance to the meeting. Thank you for inviting us.

**From:** Victor Libuku [<mailto:Victor.Libuku@mfmr.gov.na>]  
**Sent:** 08 April 2019 11:01 AM  
**To:** Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>  
**Subject:** RE: Mile 68

Hi Rod,

Your attendance will be appreciated.  
Unfortunately I can't speak on behalf of MET, but whoever has an interest or is affected at MET may attend.

Regards,  
Victor

**From:** Braby, Rodney GIZ NA [<mailto:rodney.braby@giz.de>]  
**Sent:** Monday, April 08, 2019 10:56  
**To:** Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>  
**Subject:** RE: Mile 68

Thanks Victor

I will try to attend, who from MET can attend (I assume all new people with little historic perspective?)

Regards  
Rod

**From:** Victor Libuku [<mailto:Victor.Libuku@mfmr.gov.na>]  
**Sent:** 05 April 2019 09:28 AM  
**To:** Anja Kreiner <[Anja.Kreiner@mfmr.gov.na](mailto:Anja.Kreiner@mfmr.gov.na)>; Iina Ruben <[ynaruben25@gmail.com](mailto:ynaruben25@gmail.com)>; Nelson Meroro <[nmeroro@erongorc.gov.na](mailto:nmeroro@erongorc.gov.na)>; Cameron Kandjii <[cameron.kandjii@gmail.com](mailto:cameron.kandjii@gmail.com)>; Alexander Alexander <[jalexander2539@gmail.com](mailto:jalexander2539@gmail.com)>; Nelson Williams Meroro <[meroro04@gmail.com](mailto:meroro04@gmail.com)>  
**Cc:** Chantal Prinsloo ([accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)) <[accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)>; Chief Swakopmund Traffic (Melvin Cloete) <[mcloete@swkmun.com.na](mailto:mcloete@swkmun.com.na)>; Chief Walvis Bay Traffic (Eben Platt) <[eplatt@walvisbaycc.org.na](mailto:eplatt@walvisbaycc.org.na)>; Clifton Jacobs <[cjacobs@walvisbaycc.org.na](mailto:cjacobs@walvisbaycc.org.na)>; Daniel Lange <[erongotraffic@gmail.com](mailto:erongotraffic@gmail.com)>; David Uushona <[duushona@walvisbaycc.org.na](mailto:duushona@walvisbaycc.org.na)>; Dimari van Rensburg <[dimari@erongorc.gov.na](mailto:dimari@erongorc.gov.na)>; ekhijarunguru@erongorc.gov.na; Living Desert Tours <[tommys@iway.na](mailto:tommys@iway.na)>; Marilyn Leippert <[leippert@iway.na](mailto:leippert@iway.na)>; Nangula Amuntenya-Amatsi <[namutenya@walvisbaycc.org.na](mailto:namutenya@walvisbaycc.org.na)>; Paulina Engelbrecht <[pengelbrecht@swkmun.com.na](mailto:pengelbrecht@swkmun.com.na)>; Peter van Ginkel <[paintball@iway.na](mailto:paintball@iway.na)>; Braby, Rodney GIZ NA <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>; Seblonica Kauari <[skauari@erongorc.gov.na](mailto:skauari@erongorc.gov.na)>; Simen Anderson <[simena@iway.na](mailto:simena@iway.na)>; Steve Braine <[steve@batisbirdingsafaris.net](mailto:steve@batisbirdingsafaris.net)>; sskaseba@gmail.com; Surina Eichas (ERC CRO PA) <[farita@erongorc.gov.na](mailto:farita@erongorc.gov.na)>; Tobie Gerber <[gerber@iway.na](mailto:gerber@iway.na)>; Lovisa Hailaula <[LHailaula@walvisbaycc.org.na](mailto:LHailaula@walvisbaycc.org.na)>; swakopcompol@gmail.com; mondesa@gmail.com; siegfried gawiseb <[siegfried.gawiseb@met.gov.na](mailto:siegfried.gawiseb@met.gov.na)>; Eben Petrus <[EPetrus@walvisbaycc.org.na](mailto:EPetrus@walvisbaycc.org.na)>; Florensia Mutrifa <[FMutrifa@walvisbaycc.org.na](mailto:FMutrifa@walvisbaycc.org.na)>; rob davis <[rob.davis@met.gov.na](mailto:rob.davis@met.gov.na)>; Robeam Ujaha <[rujaha@swkmun.com.na](mailto:rujaha@swkmun.com.na)>; Yvonne Andima <[YAndima@walvisbaycc.org.na](mailto:YAndima@walvisbaycc.org.na)>; Chris Tempo

<[Chris.Tempo@mfmr.gov.na](mailto:Chris.Tempo@mfmr.gov.na)>; ivan nel <[ivan.nel@met.gov.na](mailto:ivan.nel@met.gov.na)>; [riaan.met@gmail.com](mailto:riaan.met@gmail.com); Fina Kotze <[fkotze@walvisbaycc.org.na](mailto:fkotze@walvisbaycc.org.na)>; Peter Etsebeth <[PEtsebeth@walvisbaycc.org.na](mailto:PEtsebeth@walvisbaycc.org.na)>; Taimi Shikongo <[Taimi.Shikongo@mfmr.gov.na](mailto:Taimi.Shikongo@mfmr.gov.na)>; Ferdinand Hamukwaya <[Ferdinand.Hamukwaya@mfmr.gov.na](mailto:Ferdinand.Hamukwaya@mfmr.gov.na)>

**Subject:** RE: Mile 68

Please find attached the public participation meeting notice for the proposed Mile 68 project, although the meeting in Henties Bay was yesterday, all interested/affected can join the meeting at fisheries on the 11<sup>th</sup> of April.

Regards,  
Victor

**From:** Anja Kreiner

**Sent:** Thursday, April 04, 2019 08:02

**To:** Iina Ruben <[ynaruben25@gmail.com](mailto:ynaruben25@gmail.com)>; Nelson Merero <[nmeroro@erongorc.gov.na](mailto:nmeroro@erongorc.gov.na)>; Cameron Kandjii <[cameron.kandjii@gmail.com](mailto:cameron.kandjii@gmail.com)>; Alexander Alexander <[jalexander2539@gmail.com](mailto:jalexander2539@gmail.com)>; Nelson Williams Merero <[meroro04@gmail.com](mailto:meroro04@gmail.com)>

**Cc:** Chantal Prinsloo ([accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com))

<[accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)>; Chief Swakopmund Traffic (Melvin Cloete) <[mcloete@swkmun.com.na](mailto:mcloete@swkmun.com.na)>; Chief Walvis Bay Traffic (Eben Platt) <[eplatt@walvisbaycc.org.na](mailto:eplatt@walvisbaycc.org.na)>; Clifton Jacobs <[cjacobs@walvisbaycc.org.na](mailto:cjacobs@walvisbaycc.org.na)>; Daniel Lange <[erongotraffic@gmail.com](mailto:erongotraffic@gmail.com)>; David Uushona <[duushona@walvisbaycc.org.na](mailto:duushona@walvisbaycc.org.na)>; Dimari van Rensburg <[dimari@erongorc.gov.na](mailto:dimari@erongorc.gov.na)>; [ekhijarunguru@erongorc.gov.na](mailto:ekhijarunguru@erongorc.gov.na); Living Desert Tours <[tommys@iway.na](mailto:tommys@iway.na)>; Merrilyn Leippert <[leippert@iway.na](mailto:leippert@iway.na)>; Nangula Amuntenya-Amatsi <[namutenya@walvisbaycc.org.na](mailto:namutenya@walvisbaycc.org.na)>; Paulina Engelbrecht <[pengelbrecht@swkmun.com.na](mailto:pengelbrecht@swkmun.com.na)>; Peter van Ginkel <[paintball@iway.na](mailto:paintball@iway.na)>; Rod Braby <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>; Seblonica Kauari <[skauari@erongorc.gov.na](mailto:skauari@erongorc.gov.na)>; Simen Anderson <[simena@iway.na](mailto:simena@iway.na)>; Steve Braine <[steve@batisbirdingsafaris.net](mailto:steve@batisbirdingsafaris.net)>; [sskaseba@gmail.com](mailto:sskaseba@gmail.com); Surina Eichas (ERC CRO PA) <[farita@erongorc.gov.na](mailto:farita@erongorc.gov.na)>; Tobie Gerber <[gerber@iway.na](mailto:gerber@iway.na)>; Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>; Lovisa Hailaula <[LHailaula@walvisbaycc.org.na](mailto:LHailaula@walvisbaycc.org.na)>; [swakopcompol@gmail.com](mailto:swakopcompol@gmail.com); [mondessa@gmail.com](mailto:mondessa@gmail.com); siegfried gawiseb <[siegfried.gawiseb@met.gov.na](mailto:siegfried.gawiseb@met.gov.na)>; Eben Petrus <[EPetrus@walvisbaycc.org.na](mailto:EPetrus@walvisbaycc.org.na)>; Florensia Mutrifa <[FMutrifa@walvisbaycc.org.na](mailto:FMutrifa@walvisbaycc.org.na)>; rob davis <[rob.davis@met.gov.na](mailto:rob.davis@met.gov.na)>; Robeam Ujaha <[rujaha@swkmun.com.na](mailto:rujaha@swkmun.com.na)>; Yvonne Andima <[YAndima@walvisbaycc.org.na](mailto:YAndima@walvisbaycc.org.na)>; Chris Tempo <[Chris.Tempo@mfmr.gov.na](mailto:Chris.Tempo@mfmr.gov.na)>; ivan nel <[ivan.nel@met.gov.na](mailto:ivan.nel@met.gov.na)>; [riaan.met@gmail.com](mailto:riaan.met@gmail.com); Fina Kotze <[fkotze@walvisbaycc.org.na](mailto:fkotze@walvisbaycc.org.na)>; Peter Etsebeth <[PEtsebeth@walvisbaycc.org.na](mailto:PEtsebeth@walvisbaycc.org.na)>; Taimi Shikongo <[Taimi.Shikongo@mfmr.gov.na](mailto:Taimi.Shikongo@mfmr.gov.na)>; Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>; Ferdinand Hamukwaya <[Ferdinand.Hamukwaya@mfmr.gov.na](mailto:Ferdinand.Hamukwaya@mfmr.gov.na)>

**Subject:** Mile 68

Dear all,

Attached please find the BID for the proposed salt mining at Mile 68. There is a public meeting in Henties Bay this Friday. Those who cannot make it to Henties Bay but are interested to meet with the environmental consultants on the project are welcome to join the brief (max 1 hour) meeting on Thursday 11 April, 16:00 at the fisheries in Swakopmund.

Regards

Anja

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia. Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia. Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

---

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH;  
Sitz der Gesellschaft Bonn und Eschborn/Registered offices Bonn and Eschborn, Germany;  
Registergericht/Registered at Amtsgericht Bonn, Germany; Eintragungs-Nr./Registration no. HRB 18384 und/and Amtsgericht Frankfurt am Main, Germany; Eintragungs-Nr./Registration no. HRB 12394;  
USt-IdNr./VAT ID no. DE 113891176;  
Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Martin Jaeger, Staatssekretaer/State Secretary;  
Vorstand/Management Board: Tanja Goenner (Vorstandssprecherin/Chair of the Management Board), Dr. Christoph Beier (Stellv. Vorstandssprecher/Vice-Chair of the Management Board)

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia. Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

---

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH;  
Sitz der Gesellschaft Bonn und Eschborn/Registered offices Bonn and Eschborn, Germany;  
Registergericht/Registered at Amtsgericht Bonn, Germany; Eintragungs-Nr./Registration no. HRB 18384 und/and Amtsgericht Frankfurt am Main, Germany; Eintragungs-Nr./Registration no. HRB 12394;  
USt-IdNr./VAT ID no. DE 113891176;  
Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Martin Jaeger, Staatssekretaer/State Secretary;  
Vorstand/Management Board: Tanja Goenner (Vorstandssprecherin/Chair of the Management Board), Dr. Christoph Beier (Stellv. Vorstandssprecher/Vice-Chair of the Management Board)

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If

you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia. Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

---

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH;  
Sitz der Gesellschaft Bonn und Eschborn/Registered offices Bonn and Eschborn, Germany;  
Registergericht/Registered at Amtsgericht Bonn, Germany; Eintragungs-Nr./Registration no. HRB 18384 und/and Amtsgericht Frankfurt am Main, Germany; Eintragungs-Nr./Registration no. HRB 12394;  
USt-IdNr./VAT ID no. DE 113891176;  
Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Martin Jaeger, Staatssekretaer/State Secretary;  
Vorstand/Management Board: Tanja Goenner (Vorstandssprecherin/Chair of the Management Board), Dr. Christoph Beier (Stellv. Vorstandssprecher/Vice-Chair of the Management Board)

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia. Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia. Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia. Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use.



ReplyReply allForward



## FW: Mile 68

---

-----Original Appointment-----

**From:** Anja Kreiner [<mailto:Anja.Kreiner@mfmr.gov.na>]  
**Sent:** Thursday, 04 April 2019 22:21  
**To:** Anja Kreiner; Werner Petrick  
**Subject:** Mile 68  
**When:** Thursday, 11 April 2019 16:00-17:00 (UTC+02:00) Windhoek.  
**Where:** MFMR Swakopmund

----- Forwarded message -----

**From:** Anja Kreiner <[Anja.Kreiner@mfmr.gov.na](mailto:Anja.Kreiner@mfmr.gov.na)>  
**Date:** Thu, 4 Apr 2019, 21:10  
**Subject:** Mile 68  
**To:** Iina Ruben <[ynaruben25@gmail.com](mailto:ynaruben25@gmail.com)>, Nelson Meroro <[nmeroro@erongorc.gov.na](mailto:nmeroro@erongorc.gov.na)>, Cameron Kandjii <[cameron.kandjii@gmail.com](mailto:cameron.kandjii@gmail.com)>, Alexander Alexander <[jalexander2539@gmail.com](mailto:jalexander2539@gmail.com)>, Nelson Williams Meroro <[meroro04@gmail.com](mailto:meroro04@gmail.com)>, Philip Hooks ([philip.nigel.hooks@gmail.com](mailto:philip.nigel.hooks@gmail.com)) <[philip.nigel.hooks@gmail.com](mailto:philip.nigel.hooks@gmail.com)>  
**Cc:** Chantal Prinsloo ([accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)) <[accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)>, Chief Swakopmund Traffic (Melvin Cloete) <[mcloete@swkmun.com.na](mailto:mcloete@swkmun.com.na)>, Chief Walvis Bay Traffic (Eben Platt) <[eplatt@walvisbaycc.org.na](mailto:eplatt@walvisbaycc.org.na)>, Clifton Jacobs <[cjacobs@walvisbaycc.org.na](mailto:cjacobs@walvisbaycc.org.na)>, Daniel Lange <[erongotraffic@gmail.com](mailto:erongotraffic@gmail.com)>, David Uushona <[duushona@walvisbaycc.org.na](mailto:duushona@walvisbaycc.org.na)>, Dimari van Rensburg <[dimari@erongorc.gov.na](mailto:dimari@erongorc.gov.na)>, [ekhijarunguru@erongorc.gov.na](mailto:ekhijarunguru@erongorc.gov.na) <[ekhijarunguru@erongorc.gov.na](mailto:ekhijarunguru@erongorc.gov.na)>, Living Desert Tours <[tommys@iway.na](mailto:tommys@iway.na)>, Merrilyn Leippert <[leippert@iway.na](mailto:leippert@iway.na)>, Nangula Amuntenya-Amatsi <[namutenya@walvisbaycc.org.na](mailto:namutenya@walvisbaycc.org.na)>, Paulina Engelbrecht <[pengelbrecht@swkmun.com.na](mailto:pengelbrecht@swkmun.com.na)>, Peter van Ginkel <[paintball@iway.na](mailto:paintball@iway.na)>, Rod Braby <[rodney.braby@giz.de](mailto:rodney.braby@giz.de)>, Seblonica Kauari <[skauari@erongorc.gov.na](mailto:skauari@erongorc.gov.na)>, Simen Anderson <[simena@iway.na](mailto:simena@iway.na)>, Steve Braine <[steve@batisbirdingsafaris.net](mailto:steve@batisbirdingsafaris.net)>, [sskaseba@gmail.com](mailto:sskaseba@gmail.com) <[sskaseba@gmail.com](mailto:sskaseba@gmail.com)>, Surina Eichas (ERC CRO PA) <[farita@erongorc.gov.na](mailto:farita@erongorc.gov.na)>, Tobie Gerber <[gerber@iway.na](mailto:gerber@iway.na)>, Victor Libuku <[Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)>, Lovisa Hailaula <[LHailaula@walvisbaycc.org.na](mailto:LHailaula@walvisbaycc.org.na)>, [swakopcompol@gmail.com](mailto:swakopcompol@gmail.com) <[swakopcompol@gmail.com](mailto:swakopcompol@gmail.com)>, [mondesa@gmail.com](mailto:mondesa@gmail.com) <[mondesa@gmail.com](mailto:mondesa@gmail.com)>, siegfried gawiseb <[siegfried.gawiseb@met.gov.na](mailto:siegfried.gawiseb@met.gov.na)>, Eben Petrus <[EPetrus@walvisbaycc.org.na](mailto:EPetrus@walvisbaycc.org.na)>, Florensia Mutrifa <[FMutrifa@walvisbaycc.org.na](mailto:FMutrifa@walvisbaycc.org.na)>, rob davis <[rob.davis@met.gov.na](mailto:rob.davis@met.gov.na)>, Robeam Ujaha <[rujaha@swkmun.com.na](mailto:rujaha@swkmun.com.na)>, Yvonne Andima <[YAndima@walvisbaycc.org.na](mailto:YAndima@walvisbaycc.org.na)>, Chris Tempo <[Chris.Tempo@mfmr.gov.na](mailto:Chris.Tempo@mfmr.gov.na)>, ivan nel <[ivan.nel@met.gov.na](mailto:ivan.nel@met.gov.na)>, [riaan.met@gmail.com](mailto:riaan.met@gmail.com) <[riaan.met@gmail.com](mailto:riaan.met@gmail.com)>, Fina Kotze <[fkotze@walvisbaycc.org.na](mailto:fkotze@walvisbaycc.org.na)>, Peter Etsebeth <[PEtsebeth@walvisbaycc.org.na](mailto:PEtsebeth@walvisbaycc.org.na)>, Taimi Shikongo <[Taimi.Shikongo@mfmr.gov.na](mailto:Taimi.Shikongo@mfmr.gov.na)>, Ferdinand Hamukwaya <[Ferdinand.Hamukwaya@mfmr.gov.na](mailto:Ferdinand.Hamukwaya@mfmr.gov.na)>

---

**From:** Anja Kreiner  
**Sent:** 04 April 2019 08:02  
**To:** 'Iina Ruben'; Nelson Meroro; Cameron Kandjii; Alexander Alexander; Nelson Williams Meroro  
**Cc:** Chantal Prinsloo ([accounts@namibiadesertexplorers.com](mailto:accounts@namibiadesertexplorers.com)); Chief Swakopmund Traffic (Melvin Cloete); Chief Walvis Bay Traffic (Eben Platt); Clifton Jacobs; Daniel Lange; David Uushona; Dimari van Rensburg; [ekhijarunguru@erongorc.gov.na](mailto:ekhijarunguru@erongorc.gov.na); Living Desert Tours; Merrilyn Leippert; Nangula Amuntenya-Amatsi; Paulina Engelbrecht; Peter van Ginkel; Rod Braby; Seblonica Kauari; Simen Anderson; Steve Braine; [sskaseba@gmail.com](mailto:sskaseba@gmail.com); Surina Eichas (ERC CRO PA); Tobie Gerber; Victor Libuku; Lovisa Hailaula; [swakopcompol@gmail.com](mailto:swakopcompol@gmail.com); [mondesa@gmail.com](mailto:mondesa@gmail.com); siegfried gawiseb; Eben Petrus; Florensia Mutrifa; rob davis; Robeam Ujaha; Yvonne Andima; Chris Tempo; ivan

nel; [riaan.met@gmail.com](mailto:riaan.met@gmail.com); Fina Kotze; Peter Etsebeth; Taimi Shikongo; Victor Libuku ([Victor.Libuku@mfmr.gov.na](mailto:Victor.Libuku@mfmr.gov.na)); Ferdinand Hamukwaya

**Subject:** Mile 68

Dear all,

Attached please find the BID for the proposed salt mining at Mile 68. There is a public meeting in Henties Bay this Friday. Those who cannot make it to Henties Bay but are interested to meet with the environmental consultants on the project are welcome to join the brief (max 1 hour) meeting on Thursday 11 April , 16:00 at the fisheries in Swakopmund.

Regards

Anja

The information contained in this e-mail is confidential and may be subject to legal privilege and/or the subject of copyright. If you are not the intended recipient, you must not use, copy, distribute or disclose the e-mail or any part of its contents or take any action in reliance on it. If you have received this e-mail in error, please e-mail the sender by replying to this message. The Government of the Republic of Namibia shall not be held liable for any damages so caused to the unintended recipient and any unauthorized distribution by the unintended recipient. Any views expressed in this message are those of the individual sender, except where the sender expressly, and with authority, states them to be the views of Government of the Republic of Namibia. Although this email has been checked for viruses and other defects, no responsibility can be accepted for any loss or damage arising from its receipt or use. <<...>>

 **invite.ics**  
9K [Download](#)



PowerPoint Presentation for the public meeting:

30/05/2020



30/05/2020

### Background

Gecko Salt (Pty) Ltd holds DPLs 4617 and 4620  
 - Most of the exploration activities have been completed for these DPLs

Gecko recently received environmental clearance for salt mining within the Cape Cruz DPL 4617 area  
 - Cape Cruz salt pan lies 19 km north of the Mile 68 salt pan  
 - The mining licence MLI 210 application was submitted to SARS

### Background

Environmental clearance is now sought for mining salt within DPL4623 over a portion of the salt pans area at Mile 68

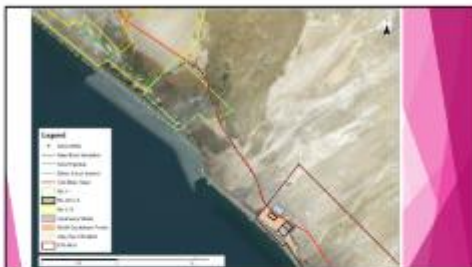
- An application will be submitted to SARS
- The Mile 68 salt pan does not have a large rock salt and brine resource compared to the Cape Cruz salt pan
- Absorption of the brine from within the salt pan for salt crystallisation is not sustainable
- Good result in the rapid dissolution of the existing rock salt and some underground withdrawal of the residual crystallisers - keeping stable integrity
- Therefore, a pipeline conveying salt water from the Cape Cruz salt pan is planned for further processing at the adjacent Mile 68 crystallisers

### Background

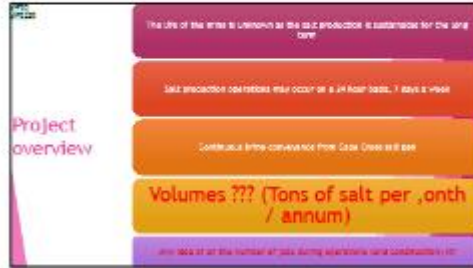
Gecko Holdings also holds rights to mine within the pan  
 - The Division No. 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000

### Project Components / Activities

Crystalisers	Down to 1000000 kg of crystallisers per the output of the pan
Pipeline	Convey salt water from the Cape Cruz salt pan via a pipeline
Pumps	Install a pump station at the salt pan
MLI 210	Obtain a mining licence for the salt pans
Water Treatment	Install a water treatment plant at the salt pans



30/05/2020



30/05/2020

### Potential Environmental and Social Issues

**Biodiversity aspects:**

- Potential for loss of biodiversity in the area
- Potential for loss of biodiversity in the area

**Air quality:**

- Potential for increased air pollution

**Noise:**

- Potential for increased noise levels

**Water quality and groundwater levels:**

- Potential for increased water usage

**Heritage aspects:**

- Potential for loss of heritage sites

**Increased traffic volumes on public roads and safety of new road use:**

- Potential for increased traffic volumes

**Employment opportunities (permanent / temporary):**

- Potential for increased employment opportunities

**Growth of both local and regional economy:**

- Potential for increased economic growth

### What you can do!

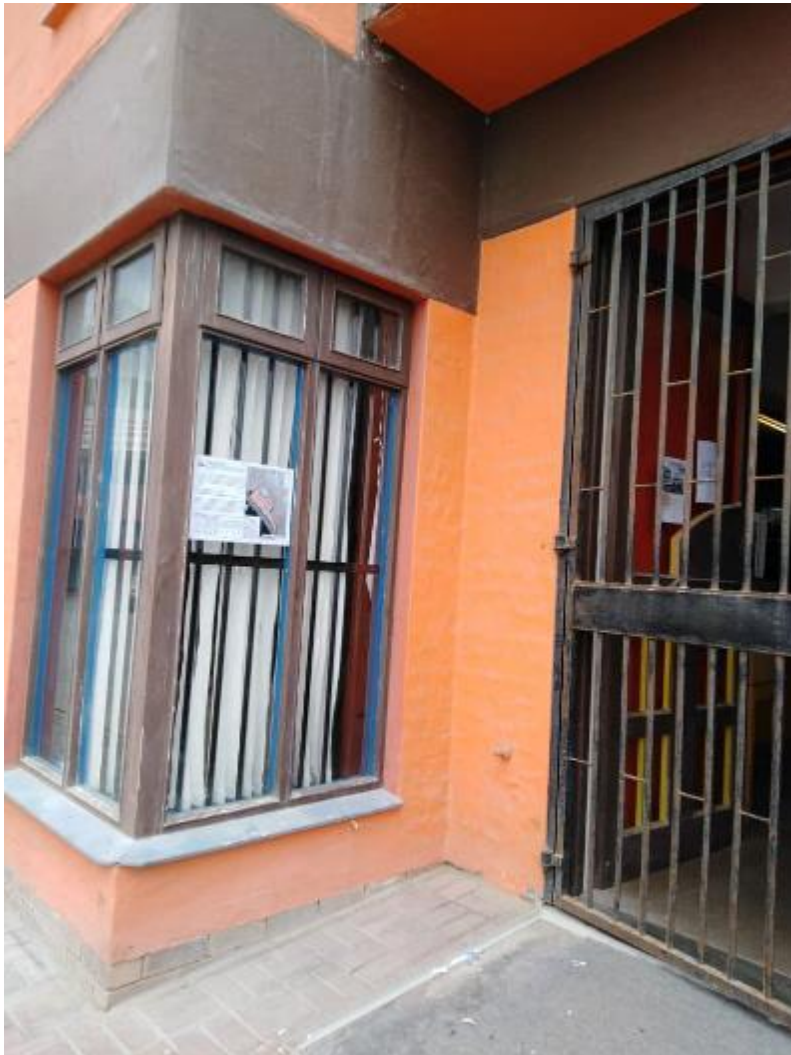
All ISAs are invited to participate in writing any queries and suggestions regarding the proposed development. The correspondence must include:

1. Name & Location
2. Organisation (if applicable)
3. Purpose of the submission
4. Contact details and
5. Any other relevant, financial, technical or other details.

All initial contributions, comments and concerns must be submitted by 11th April 2019.

Send written submissions to [philip.nigel.hooks@gmail.com](mailto:philip.nigel.hooks@gmail.com)









**MOUNTSINAMBIYA RECOVERY CENTRE**  
 DRUG & ALCOHOL ABUSE FAITH BASED RESTORATION CENTRE  
 For more info contact Arno Engels  
 Cell: 081 860 8326  
 email: [mountsinambiya@gmail.com](mailto:mountsinambiya@gmail.com)

**TO LET**  
 Prime Office and Retail space



Hanna Muzetani Street, Walvis Bay  
 (Opposite Indongo Toyota)

- Well located offering sufficient amount of client parking.
- Stylish Showroom, ideal for any retail outlet
- Offices and showroom custom made finishes

Available immediately:  
 Ground Floor:  
 Showroom - 124 sqm @ N\$ 80.00/sqm  
 First Floor:  
 Office 146sqm @ N\$55.00/sqm  
 Office 370sqm @ N\$80.00/sqm  
 For more information Mail:  
[info@hansdak@gmail.com](mailto:info@hansdak@gmail.com) or contact 0816827658

**PUBLIC NOTICE**

**ENVIRONMENTAL IMPACT ASSESSMENT FOR SALT MINING AT MILE 68 SALTPAN WITHIN EPL410**

In terms of the Environmental Management Act (No 1 of 2002) and the Environmental Impact Assessment (EIA) Regulations (Government Notice No. 39 of 2012), notice is hereby given to all potential interested and affected parties that an application will be made to the Environmental Commissioner for an environmental licence for salt mining at the Mile 68 saltpan.



Figure: Project Infrastructure Layout and Location.  
 Projects Salt mining at Mile 68 saltpan  
 Preparer: Gecko Salt (Pty) Ltd  
 Environmental Assessment Practitioner: Mr. Philip Hoeks  
 Gecko Salt (Pty) Ltd plans to mine salt from the saltpan at Mile 68. The saltpan is located along the coastal beach coastline within the Forwerd Region, north of Henties Bay. Salt will be mined from shallow salt crystallizers. Brine will be conveyed from Cape Cross in a pipeline. A new stand around the pan and processing plant is planned for public use. Harbourside sitting Shoppers will be used for salt harvesting.

**Public meeting** will be held at the Henties Bay Show-pool Tennis Hall on **7 April 2019** at 1pm and 4pm.  
 You are hereby invited to share any comments, issues or concerns related to the Environmental Assessment and register as an interested and affected party. The initial consultation period starts on the 30<sup>th</sup> March 2019 and ends on the 11<sup>th</sup> April 2019. A background information document is available upon request.  
 Please address your responses to Mr. Philip Hoeks [philip.hoeks@gecko.com](mailto:philip.hoeks@gecko.com)

# Close to 900 containers handled in the port of Walvis Bay this weekend



Two container ships are calling at Walvis Bay on Sunday to discharge a total of 413 containers and loading for export a total of 480 containers. The two container vessels are Gerrit Braren and Boundary. A third cargo vessel, Kota Buana, arrives alongside today to discharge machinery and trucks.

Day	High Tide	Low Tide
<b>Friday 8 March</b>	04:32	10:28
	16:45	22:33
<b>Saturday 9 March</b>	04:59	10:55
	17:14	23:01
<b>Sunday 10 March</b>	05:27	11:25
	17:44	23:30
<b>Monday 11 March</b>	05:58	11:57
	18:18	



## Port Log

DATE	TIME	VESSEL	TO	FROM	TYPE	STATUS
8-Mar	22:00	CHRISTIAN MARA	12113	1400	TANKER	ARRIVE
8-Mar	8:00	GEORGE ACE	89033	3000	BO BO	DEPT
8-Mar	7:00	LOCKED TIDE	494	810	CREW BOAT	ARR
9-Mar	8:00	BUCHA ROMA	30394	1500	GENERAL CARGO	DEP
9-Mar	8:00	CATERIA STAR	3624	700	TUG	TRADE OCEAN
10-Mar	8:00	MARPORT FIVE	1500	310	HEMIC EFFORT	EXPRESS
10-Mar	8:00	GERRY BRAREN	18017	1700	COTAINER	DEPART
10-Mar	18:00	BOUNDARY	18029	1700	COTAINER	DEP
10-Mar	8:00	PELAGIA	1518	670	RESEARCH	EXPRESS
12-Mar	8:00	BILLY MARTIN II	30488	3000	MULTIPURPOSE	BACK
12-Mar	8:00	AMANDA S	16823	1600	COTAINER	SEC BAY
12-Mar	8:00	DEWET DEET	8807	1000	F/V	PARAVENT
12-Mar	18:00	FALCHER BAY	12328	1600	TANKER	DEP
14-Mar	8:00	MARINA COLOMBIO	30888	3400	COTAINER	DEPART
14-Mar	8:00	BARRIER	11928	1800	COTAINER	DEP
14-Mar	8:00	VERACID	2705	1800	REFER	DEP
14-Mar	7:00	MARPORT FIVE	1500	310	HEMIC EFFORT	EXPRESS
14-Mar	8:00	VERON I	4907	1000	F/V	TRADE OCEAN
15-Mar	8:00	MYTRON	6200	810	RESEARCH	EXPRESS
15-Mar	18:30	MARINA CASABLANCA	30623	3400	COTAINER	DEPART
15-Mar	8:00	BETHA STAR	3128	700	F/V	TRADE OCEAN
14-Mar	8:00	HEMICH STRAIT	3828	1600	TANKER	DEP
17-Mar	6:00	BRIGHT BAY	3340	3000	MULTIPURPOSE	BACK
17-Mar	6:00	POLARIS ALMA	7894	830	RESEARCH	EXPRESS

**Corporate Tax Tips of the day**

Where foreigners are awarded as benefits from group companies situated in other countries, the individual tax implications for the employee should be carefully considered.

**pwc**

Herma Wagenaar  
 Consultant  
 Tax Services  
 Tel: +264 61 814 3000  
[herma.wagenaar@pwc.com](mailto:herma.wagenaar@pwc.com)



## 'Pug of war' over eBay sale of German dog

A decision by German local authorities to impound a pug from an indebted family and hawk it on eBay was spiralling this week into a possible case for the courts.

The buyer, Michaela Jentzen, told national news agency DPA she had filed a case against Allen city authorities for "fraud".



Nampa-AFP

The pug named Edda was seized late last year by Allen local officials from a family which had been unable to pay their debts to the city authorities.

A city employee put it on eBay using a private account and sold it for 600 euros (about N\$1 000), with the proceeds going to city coffers.

In the advert, the pug was described as healthy, vaccinated and dewormed, but the buyer said the animal suffers from multiple problems including an eye injury that would require an operation.

"It was all lies," she said, adding that her lawyer had filed a lawsuit against city authorities last week.

The unusual case has gripped pet-loving Germany.

Over the weekend, a spokeswoman from North Rhine-Westphalia state's interior ministry said that while animals can be seized to pay off their owners' debts, house pets are essentially exempt.

She also noted that impounded items

should be publicly auctioned and not simply sold on eBay through a private account.

Amid the howls of outrage, Allen city authorities said on their website that they were ready to reverse the sale "if the parties involved are in agreement".

— Nampa-AFP



Nampa-AFP

**MUD PARTY ...** Revelers take part in the 'Bloco da Lama', a mud carnival party, in Paraty, Rio de Janeiro state, in Brazil. 'Bloco da Lama' started in 1986

and has since become a traditional event at the historical city of Paraty, situated on the Costa Verde (Green Coast) between Rio and São Paulo.

## Magazine returned to library after 51 years with 'late fee'

• BEN HOOPER

AN Ohio library says an issue of *Life* magazine that went missing in 1968 has now been returned via mail along with a \$100 check to cover "the late fee".

The Cayahoga County Public Library said in a Facebook post that an anonymous package received in the

mail turned out to contain the September 1968 issue of *Life* magazine, which featured The Beatles on the cover.

The magazine had been taken from the library shortly after its publication.

The package included a note and a money order for \$100 (about N\$1 400).

"I stole this magazine from the Parma Ridge Road Library when I was a kid. I'm sorry I took it. I've enclosed a check for the late fee," the note said.

The library thanked the person for their honesty. "To the Beatles fan who 'borrowed' this copy of *Life* magazine in 1968: Thank you for returning it this week and clearing your conscience," the Facebook post said, before ending with some hashtags including #wonder #betleristhanever - apt.com

### St Paul's College Grade 1 for 2020



**Primary School Open Morning**  
 Thursday, 14 March 2019

**An invitation to parents!**  
 Visit us any time between 07:30 and 10:00

Applications close on 31 May 2019  
 Apply online at [www.spcnam.org](http://www.spcnam.org)

The Secretary, St Paul's College Primary  
 20 Jan Jonker Road, Klein Windhoek  
 Tel: 061 227783, Fax: 061 302582  
 E-mail: [primarysec@spcnam.org](mailto:primarysec@spcnam.org)  
[www.spcnam.org](http://www.spcnam.org)



**ZUBLIC NOTICE ENVIRONMENTAL IMPACT ASSESSMENT FOR SALT MINING AT MILE 68 SALTPAN WITHIN EPL4426**

In terms of the Environmental Management Act (No 7 of 2002) and the Environmental Impact Assessment (EIA) Regulations, Government Notice No. 28 of 2012, notice is hereby given to all potential interested and affected parties that an application will be made to the Environmental Commission for an environmental clearance for salt mining at the Mile 68 saltpan.

**Legend**  
 - - - - - Salt Pan  
 - - - - - Water Canal System  
 - - - - - Overheadline  
 - - - - - Road Management  
 - - - - - 200m Buffer Zone  
 - - - - - Proposed Road  
 - - - - - Cap Point/Phase  
 - - - - - EPL Boundary

**Figures: Project Infrastructure Layout and Location.**  
 Project: Salt mining at Mile 68 saltpan  
 Proponent: Gecko Salt (Pty) Ltd  
 Environmental Assessment Practitioner: Mr. Philip Steyn  
 Gecko Salt (Pty) Ltd please to enter call from the website at [www.eca.gov.za](http://www.eca.gov.za).  
 The saltpan is located along the coastal Namib coastline within the Orange Region, north of Herold Bay. Salt will be mined from shallow water crystallizers. Brine will be transported from Cape Cross in a pipeline. A new road around the pan and processing plant is planned for public use. Historical mining heritage will be used for infrastructure.  
 Public meetings will be held at the Herold Bay Municipal Town Hall on 18 April 2018 at 9am and 10am.  
 You are hereby invited to share any comments, issues or concerns related to the Environmental Assessment and register as an interested and affected party. The initial consultation period starts on the 20th March 2019 and ends on the 11th April 2019. A background information document is available upon request.  
 Please refer to our response to Mr. Philip Steyn: [philip.steyn@geckosalt.com](mailto:philip.steyn@geckosalt.com)



### St Paul's College

Applications are invited for entry to  
 Grade 1 & 8 in 2020



Online application forms are available on the school's website and should be submitted by Friday 31 May 2019.

St Paul's College  
 P O Box 11738, Windhoek  
 Tel: 061 227783, Fax: 061 226481  
 Website: [www.spcnam.org](http://www.spcnam.org)  
 202 Sers Hagevne Drive  
 Klein Windhoek







**Short Term Loans**

- 10
- Three months bank statement
- Payable

Tel: 064 220 630  
jclnamibia@nwweb.com.na  
12th Road Schoemans Building  
Walvis Bay

**NOTICE  
CONSENT USE IN TERMS OF TOWN  
PLANNING SCHEME REGULATIONS**

Please take note that CrossFit Swakopmund herewith intends to apply to the Municipality of Swakopmund for the following:

Special permission to operate a Functional Sport and Fitness Facility on Erf 620, (Mandume Ya Ndemafayo Street) Ext 1, Swakopmund.

Any person having any objection against such application should lodge their objection/s in writing within 14 days of the last publication to both the Chief Executive Officer of the Swakopmund Municipality and the applicant during normal business hours. Closing date for objections or comments is 5 April 2019.

Contact Person:  
Nolene Kotze, Tel: +264 081 485 4488,  
Email: kotzenolene@gmail.com or  
Mr J. Heita (Manager: Town Planning)  
Tel: +264 (64) 410 4403 / 081 150 0249

**PUBLIC NOTICE**

**ENVIRONMENTAL IMPACT  
ASSESSMENT FOR SALT MINING AT  
MILE 68 SALTPAN WITHIN EPL 4418**

In terms of the Environmental Management Act (No 7 of 2002) and the Environmental Impact Assessment (EIA) Regulations (Government Notice No. 36 of 2012), notice is hereby given to all concerned interested and affected parties that an application will be made to the Environmental Commissioner for an environmental clearance for salt mining at the Mile 68 saltpan.



**Figures: Project Infrastructure Layout and Location.**  
Project: Salt mining at Mile 68 saltpan  
Proponent: Gecko Salt (Pty) Ltd  
Environmental Assessment Practitioner: Mr. Philip Steinkamp  
Gecko Salt (Pty) Ltd plans to mine salt from the saltpan at Mile 68. The saltpan is located along the coastal Namib coastline within the Erongo Region, north of Henties Bay. Salt will be mined from shallow salt crystallizers. Brine will be conveyed from Cape Cross in a pipeline. A new road around the saltpan/processing plant is planned for public use. Stakeholders among farmers will be used for information.  
**Public meetings will be held at the Swakopmund Municipal Town Hall on 27 April 2019 at 17h and 4pm.**  
You are hereby invited to share any comments, issues or concerns related to the Environmental Assessment and register as an interested and affected party. The initial consultation period starts on the 27th March 2019 and ends on the 31st April 2019. A background information document is available upon request.  
Please address your responses to: Mr. Philip Steinkamp, philip.steinkamp@gmail.com

**Sixth passenger liner confirms for March**



March will go down as a good month for the year for the port of Walvis Bay and the wider coastal economy, with the sixth passenger liner that confirmed visiting for the month. The passenger liner AIDAmerida in the meantime confirmed docking in Walvis Bay on Tuesday.

For the remainder of the month the cruise liner schedule for the port of Walvis Bay looks as follows: Sunday (17 March) Crystal Serenity. On 19 March AIDAmerida, 20 March Aegean Odyssey; 24 March Saga Pearl II and Silver Cloud 31 March. (On 1 March Seaborn Sojourn called at port).

**Friday 15 March**

Low Tide: 03:24  
High Tide: 10:01  
Low Tide: 16:35  
High Tide: 23:09

**Sunday 17 March**

High Tide: 00:33  
Low Tide: 06:40  
High Tide: 13:01  
Low Tide: 19:07

**Saturday 16 March**

Low Tide: 05:20  
High Tide: 11:46  
Low Tide: 18:04

**Monday 18 March**

High Tide: 01:32  
Low Tide: 07:37  
High Tide: 13:56  
Low Tide: 19:56



**Port Log**

DATE	TIME	SHIP	ARR	DEPT	TYPE	AGENCY
12-Mar	8:00	VYTER 1	4407	1030	F/V	TRADE OCEAN
13-Mar	20:00	BARRIER	11028	1630	CONTAINER	SON
14-Mar	8:00	FAIKUSUM BAWA	10628	1630	TANKER	OGS
14-Mar	22:00	VEDALDUI	3789	1930	REEFER	SON
15-Mar	9:00	SETROB	4280	1800	REFRIGER	EXPRESS
15-Mar	14:00	CAVEMIA STAR	5824	930	F/T	TRADE OCEAN
16-Mar	8:00	WABEK CARABALIA	30849	2430	CONTAINER	SHARAF
16-Mar	8:00	BEREK STEERT	28428	2430	TANKER	SON
16-Mar	17:00	JUPITER 1	7763	2130	F/T	RAMBOY
17-Mar	8:00	ROBERT KEY	30448	3000	F/T	MULTIPURPOSE
17-Mar	20:30	FTI EDGAR BE	29507	1830	TANKER	SON
17-Mar	6:00	CENTRAL SOBENITY	8800	2800	PASSENGER	SON
18-Mar	18:00	ASTRA	24247	1830	REEF	SON
18-Mar	18:00	GRALCOSE ACE	88851	2030	REEF	SON
18-Mar	7:00	MCC JAMES 3	24002	2030	CONTAINER	MCC BAN
19-Mar	6:00	POLARIS ALMA	7894	930	REEF	EXPRESS
19-Mar	8:00	VYTER 0	229	420	SHARP YERRE	EXPRESS
19-Mar	18:00	ADONIRA	82200	2130	PASSENGER	SON
19-Mar	7:00	HARROCK FORD	1659	930	REEF	EXPRESS
20-Mar	4:00	BARROCK CARO TERRE	99869	3430	CONTAINER	SHARAF
20-Mar	6:00	ARSIAN ODYSSEY	12096	1830	PASSENGER	SON
21-Mar	17:00	GILROY COULGAR	83698	2030	F/T	SON
22-Mar	14:00	WABERAK CARABALIA	30849	2430	CONTAINER	SHARAF
23-Mar	6:00	AAL SLADWYNE	19129	1630	REEF	OGS
24-Mar	9:00	MCC GARIBELLA	21997	1830	CONTAINER	MCC BAN
24-Mar	7:00	ARERA	299	400	SHARP YERRE	EXPRESS
24-Mar	6:00	SAGA FRASER	15077	1640	PASSENGER	MCC BAN
24-Mar	13:00	PHI RIO BOB OSTRAN	26940	1930	F/T	SON
25-Mar	6:00	BOJALIN	1823	880	GENERAL CARGO	PANAVERT
25-Mar	6:00	BARBER	17928	1800	CONTAINER	SON
25-Mar	7:00	CANAPAD 1	4407	2030	F/T	RAMBOY
26-Mar	6:00	GIBEN SOLOSTAR	33468	2000	MULTIPURPOSE	SON
26-Mar	8:00	DEBERT RUBY	4407	2030	F/T	PANAVERT
27-Mar	6:00	REO CEDAR	23122	1930	MULTIPURPOSE	SON
27-Mar	6:00	DEBERT RUBY	4407	2030	F/T	PANAVERT
27-Mar	12:00	DEBERT RUBY	18017	2730	CONTAINER	SHARAF



**CAT CARER** ... Hiba Junaidi, a Palestinian resident of the divided city of Hebron in the southern West Bank, has been caring for cats for more than 10 years and two years ago turned over her garden to around 50 stray felines, feeding them and caring for them. Junaidi, a 25-year-old graphic designer, installed a series of 'cat homes' to keep the animals in while she coordinates to have some of the sick cats taken to Israeli territory for treatment.



**COMPASSION** ... Nir, a cow fitted with a prosthetic hind leg, gets a hug from a volunteer at Moshav Oshon, an agricultural community in central Israel. The cow lives at 'Freedom Farm', a sanctuary for mostly disabled animals. Part of Nir's right hind leg was amputated after she suffered a fracture - an injury that would have been a death sentence for most cattle. The 240 animals at the sanctuary include a three-legged donkey, a sheep with leg braces, and a blind goat.

# Prehistoric humans loved their dogs to death

• MARLOWE HOOD

Neolithic communities classed near present-day Barcelona some 6 000 years ago were really keen on dogs, in this life and the next.

Archaeological evidence from at least four sites showed prehistoric humans and their four-legged friends living in close quarters, working together, and sharing a common diet of mostly grains and veggies.

"These animals were fully integrated into the Neolithic communities," Silvia Albizuri, a researcher at the University of Barcelona, told AFP.

And the special status accorded to canines even extended to the grave. Albizuri and her team reported recently in the *Journal of Archaeological Science Reports*.

In more than two dozen circular burial plots, the partial or complete remains of pooches were carefully laid out next to individual men, women and children.

But the dogs chosen to spend eternity with their masters paid a stiff price for the privilege: they were sacrificed at the time of burial, the study concluded.

The animals ranged in age between one and six years, with a quarter estimated at 12 and 18 months old.

"The selection of puppies and one-year-old animals suggests the intention to sacrifice," said Albizuri.

The Pit Grave people, in other words, loved their dogs to death.

The preference for young dogs may also have stemmed from a reluctance to lose older ones already trained up in their guarding or herding duties.

A lack of cut marks on the dog bones also suggests their flesh was not cut away and consumed before burial.

Canines and humans laid to rest side by side have been found at other Middle Neolithic sites in northern Italy and southern France, but the Bobila Madurell tomb - just south of Barcelona - has more dogs than any other, the study said.

The remains of all but nine of the 26 dogs examined were excavated there.

Dogs were first used by humans for hunting and, probably transport, scientists speculate.

As humans settled and began to practise agriculture some 10 000 years ago, canines became sentinels against upright invaders and wild animals, especially their evolutionary cousins, wolves.

They also learned to herd other domesticated creatures, such as sheep, goats or cattle.

"Dogs played an important role in the economy of Neolithic populations, taking care of herds and settlements," the researchers noted.



**JOINT BURIAL** ... Skeletal remains of dogs and humans found at Bobila Madurell, an archaeological site in Spain, indicate that canines were sacrificed to be buried with their human companions.

The mid-sized dogs described in the study - standing up to half a metre tall, and weighing about 15 kilograms - resemble "shepherd dogs of the central Pyrenees", the mountain chain separating France and Spain, Albizuri said.

Bones from livestock found at the Spanish burial sites were scattered in a haphazard manner, further proof that Neolithic canines carefully laid to rest were in a class of their own.

In the 8th millennium BC, southern Europe was dotted with a few large settlements, along with small villages or hamlets in plains or on hilltops.

Archaeologists have also unearthed the remains of simple farms, temporary shelters, and sites used to store grain. - *Namapo-AFP*

**City of Windhoek**  
Public Notice  
PERMANENT CLOSURE OF PORTION A OF ERF 229B, OKURYANGAVA AS 'PUBLIC OPEN SPACE', (THE PORTION IS ± 514m<sup>2</sup> IN EXTENT, AND WILL BE SOLD TO THE OWNER OF ERF 1924, OKURYANGAVA FOR CONSOLIDATION PURPOSES)

Notice is hereby given in terms of Article 50 (1) (a) (i) of the local Authorities Act of 1992 (Act 23 of 1992) that the City of Windhoek proposes to close permanently the under-mentioned portion as indicated on locality plan, which lies for inspection during office hours at the office of Urban Policy, Room 519, Municipal Offices, Independence Avenue.

PERMANENT CLOSURE OF PORTION A OF ERF 229B, OKURYANGAVA AS 'PUBLIC OPEN SPACE', (THE PORTION IS ± 514m<sup>2</sup> IN EXTENT, AND WILL BE SOLD TO THE OWNER OF ERF 1924, OKURYANGAVA FOR CONSOLIDATION PURPOSES)

Objections to the proposed closing are to be served on the Secretary, Townships Board, Private Bag 13289, and the Chief Executive Office, B.O. Box 99, Windhoek, within 14 days after the appearance of this notice in accordance with Article 50 (1) (c) of the above Act.

**Tent World**  
Tel: +27 (0) 87 800 2600  
Call: +27 (0) 78 796 8579  
Info@gecko.com.na  
www.gecko.com.na

145 Van Jaarsveld  
Goodwood  
Johannesburg  
South Africa

## MAD MARCH SALE

**HOT DEAL 1**  
New 10m x 10m  
Full Pack, Full  
Rope & Staircase  
**R9500.00**

**HOT DEAL 2**  
New 10m x 10m  
Full Pack, Full  
Rope & Staircase  
**R12500.00**

**HOT DEAL 3**  
New 10m x 10m  
Full Pack, Full  
Rope & Staircase  
**R22000.00**

**HOT DEAL 4**  
New 10m x 10m  
Full Pack, Full  
Rope & Staircase  
**R24000.00**

**HOT DEAL 5**  
7 x 12  
Stretch Tent  
**R21000.00**

**HOT DEAL 6**  
NEW RANGE  
New 10m x 10m  
Full Pack, Full  
Rope & Staircase  
**R3500.00**

**HOT DEAL 7**  
NEW RANGE  
New 10m x 10m  
Full Pack, Full  
Rope & Staircase  
**R6999.00**

**HOT DEAL 8**  
NEW RANGE  
New 10m x 10m  
Full Pack, Full  
Rope & Staircase  
**R1950.00**

WhatsApp Us Now For More Information +27 78 796 8579  
Please wait for the 516322419 T & S O V Apply

From: Tents, Awnings, Marquees, Stretch Tents, Canvas Tents, Pop-up Tents, Arch Frame Tents, Bag and Pole Tents, Dinosaur Awnings, Tents, Awnings, Tents, Marquees, Tents, Mobile Offices, Tents and more

**PUBLIC NOTICE**  
ENVIRONMENTAL IMPACT  
ASSESSMENT FOR SALT  
MINING AT MILE 68 SALTPAN  
WITHIN SFL4426

**gecko SALT**

In terms of the Environmental Management Act (No. 1 of 2002) and the Environmental Impact Assessment (EIA) Regulations (Government Notice No. 30 of 2012), notice is hereby given to all potential interested and affected parties that an application will be made to the Environmental Commission for an environmental clearance for salt mining at the Mile 68 saltpan.

**Figure 1: Project Infrastructure Layout and Location**

Project: Salt mining at Mile 68 saltpan.  
Prepared by: Gecko Salt (Pty) Ltd.  
Environmental Assessment Practitioner: Mr Philip Hoeks.

Gecko Salt (Pty) Ltd plans to mine salt from the saltpan at Mile 68. The saltpan is located along the central Namib coastline within the Orange-Benguel world of Herdler Bay. Salt will be mined from shallow salt crystallizers. Salt will be conveyed from Cape Crows to a pipeline. A new road around the pan and processing plant is planned for public use. Historical mining equipment will be used for infrastructure.

Public meetings will be held at the Herdler Bay Municipal Town Hall on 4th April 2020 at 9am and 4pm.

You are hereby invited to attend any public meetings in connection with the Environmental Assessment and register as an interested and affected party. The initial consultation period starts on 28th March 2020 and ends on the 17th April 2020. A background information document is available upon request.

Please address your responses to Mr. Philip Hoeks:  
philip@gecko.com.na



**ENVIRONMENTAL IMPACT ASSESSMENT FOR SALT MINING AT MILE 68 WITHIN EXCLUSIVE  
PROSPECTING LICENCE 4426, ERONGO REGION**

**Minutes of Public Meeting**

Meeting Date and Time: 4 April 2019 (15:00)

Venue: Henties Bay Town Hall

Attendees: Refer to the Attendance Register presented in Appendix 1

Purpose of meeting:

- To inform Interested and affected parties (I&APs) about:
  - The proposed Salt Mining Project
  - The EIA process
  - How I&APs can participate
- Obtain input from I&APs on:
  - Issues & concerns
  - Environmental sensitivities and potential impacts
- To discuss potential environmental impacts

**1. OPENING AND INTRODUCTION**

Werner Petrick (WP), who facilitated the meeting, welcomed all to the meeting. All attendees introduced themselves and who they represented.

**2. PRESENTATION**

WP presented the following by means of a PowerPoint presentation:

- Background and overview of the proposed Salt Mining Project
- EIA Process
- Potential environmental and social issues

**3. ISSUES / COMMENTS / QUESTIONS**

A number of questions were asked and comments / issues were raised during the meeting. These are summarized in the table below. Where a response was provided, the response has also been included in the table.

Issues / Comments / questions raised during the meeting	By Whom	Responses provided by WP
What is Mr Philip Hooks’ (who is conducting the EIA) process) Company called and does he have a registered company? What is Mr Hooks’ qualifications ?	Mr Gossow	Mr. Philip Hooks is an independent Environmental Assessment Practitioner, appointed by Gecko Salt to Conduct the EIA process. The relevant Curriculum Vitae Documentation will be attached as an appendix in the EIA Scoping Report.
Is EPL 4426 registered with MME? Has it not expired? What is “ML 68” in the map on slide 12?		It is understood that EPL 4426 is held by Gecko Salt. However, whether it expired on not needs to be confirmed. “ML 68” on the Map is misleading and needs to be corrected in the Report. It should read Mile 68 (misspelling of Myl 68)
The proposed new ML is much smaller than the EPL area. Why not use a bigger area? Why not build in to desert – why utilize this land?		
What will be the production in tons / year? What is the market and who will be the clients?		Approximately 220 000 tons of salt will be produced from the envisaged development.
The C34 Road reserve is not a registered road reserve.  The pipeline following the road reserve will also require an environmental clearance.  Will the pipeline be above or below the ground?		The activities associated with the proposed brine pipeline is part of the EIA process being undertaken.  It is not clear yet whether the pipeline will be above ground or below ground. This will be considered as part of the EIA process, and recommendations made (also) from an Environmental perspective.

<p>Why did Gecko Salt chose to develop the project at Mile 68 ? Is it because it has already been built?</p>	<p>Mr Ilston</p>	
<p>The Background Information Document (BID) is an exact copy of previous report done by TY Investments. It describes a similar construction method that has been done already. Crystallisers have already been constructed in this location.</p>		
<p>We have no knowledge of Gecko conducting any exploration activities on the EPL. We would like to see these reports.</p>		
<p>Is it legal for Gecko to proceed with the EIA if the EPL has expired?</p>		<p>Cannot comment on the status of the EPL.</p>
<p>The shape of ML 82F on the Figure (slide 12) is not correct. Mr. Hooks has the correct shape of this ML, which is actually bigger.</p>		
<p>I don't see the need for the pipeline and to pump the brine to Mile 68?</p> <p>What tests have been done to state that Abstraction of the brine from within the Mile 68 salt pan for salt crystallisation is not sustainable and would result in the rapid dissolution of the existing rock salt and cause widespread subsidence of the constructed crystallisers - impacting their integrity?</p> <p>Why not stay at Cape Cross - if you can do the same at Cape cross?</p>		
<p>What will the quantity be?</p>		<p>The design pump rate / volume for the pipeline is 1.5 million m<sup>3</sup> of brine per annum (maximum) to produce approximately 220 000 tons of salt from the envisaged development</p>

	Mr De Bruin	
Have you calculated traffic and what the impacts will be on the roads?	not known	A traffic impacts assessment was conducted as part of the EIA process for the Cape Cross Project. The EIA process for the proposed Mile 68 project will also consider the traffic impacts.
Will ladies also be considered for work?	not known	Usually gender should not be an issue, however it depends on the type of work. The Environmental Management Plan will provide relevant recommendations in terms of employment.

#### 4. MEETING CLOSURE

WP closed the meeting and thanked all for attending.

Gecko Salt (Pty) Ltd - Mile 68 Salt Project – EIA – Public Meeting

Attendance List: 3pm / 6pm Meeting Venue: Henties Bay Town Hall Date & Time: 4<sup>th</sup> April 2019

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol & Organisation	Telephone Number / Telefoon Nummer / Email address
Beyn	WIRTHITS	SALZ GOSSEN PROJECTS	081 127 8511 bynga@geckosalt.com
Caingob	Gabriel	TY INVESTMENT	081 5563551
Markin	Donets	TY INVESTMENT	081 7595766
Shantal	Wanango	STK	081 2538057
De Bruin	John	TY INVESTMENT	081 8530052
Meas	Goses	TY INVESTMENT	081 296 92071
Kenny	Wabeke	TY INVESTMENT	081 7119864
Schneiders	Fernand	TY INVESTMENT	081 291 06197

**Gecko Salt (Pty) Ltd - Mile 68 Salt Project – EIA – Public Meeting**

Attendance List: 3pm / 6pm Meeting    Venue: Henties Bay Town Hall    Date & Time: 4th April 2019

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol & Organisation	Telephone Number / Telefoon Nummer / Email address
Simon	Snyders	Director Seaside	081 601 2541
Michelle	ILLSTON	T. M. INVESTMENTS PTY	051 968 9503
JURGEN	GROSSER	POLE GROSSER HOPPING PTY LTD	061 124 2715 saj@grosserjg@aol.com.na
Karolina	Kafika	KEI Investments cc	0813658299
Hahawus	Gamilid	Ty INVESTMENT	051 4274 519
Ruben	Hemusals	Ty Investment	0816978134
Patrius	Boche	Ty INVESTMENT	081 3960348
ISA.	Amangela	Ty INVESTMENT	0813181824
Sicarius	Gaseb	Ty Investments	0812354079



Gecko Salt (Pty) Ltd - Mile 68 Salt Project - EIA - Public Meeting

Attendance List: 3pm / 6pm Meeting Venue: Henties Bay Town Hall Date & Time: 4th April 2019

First Name / Eerste Naam	Last Name / Van	Title or Role / Titel of Rol & Organisation	Telephone Number / Telefoon Nummer / Email address
Tom	Snyders	Customer Service	081 408 2541
Melinda	Teustep	T.Y. INVESTMENTS TY	081 968 9083
JULIEN	BOSDORP	BOF ROSSIGN HARDING PTY LTD	081 242 2713 sai2yossj@afol.com.na
Karacena	Kafika	KEI (Construction) CC	081 365 8299
Fabianus	Garnickel	TY INVESTMENT	081 422 74 519
Ruben	Huisals	TY Investment	081 697 8134
Paulus	Böck	TY INVESTMENT	081 396 0348
ISK.	Amayela	TY INVESTMENT	081 712 1224
Silvanus	Gosch	TY Investments	081 235 9099
Werner	Petricks	Env. Ass. Practitioner	081 405 9681 w.p.petricks@numil.com.na
Morne	Du Toit	Gecko	morne.dutoit@gecko.na

**ENVIRONMENTAL IMPACT ASSESSMENT FOR SALT MINING AT MILE 68 WITHIN EXCLUSIVE  
PROSPECTING LICENCE 4426, ERONGO REGION**

**Minutes of Key Stakeholder Meeting: Ministry of Fisheries and Marine Resources (MFMR)**

Meeting Date and Time: 11 April 2019 (16:00)  
Venue: MFMR Offices in Swakopmund  
Attendees: Refer to the Attendance Register is presented in Appendix 1

Purpose of meeting:

- To inform the MFMR about:
  - The proposed Salt Mining Project
  - The EIA process
  - How they can participate
- Obtain input from the MFMR on:
  - Issues & concerns
  - Environmental sensitivities and potential impacts
- To discuss potential environmental impacts

**1. OPENING AND INTRODUCTION**

Philip Hooks (PH), who facilitated the meeting, welcomed all to the meeting. All attendees introduced themselves.

**2. PRESENTATION**

PH presented the following by means of a PowerPoint presentation:

- Background and overview of the proposed Salt Mining Project
- EIA Process
- Potential environmental and social issues

**3. ISSUES / COMMENTS / QUESTIONS**

A number of questions were asked and comments / issues were raised during the meeting. These are summarized in the table below. Where a response was provided, the response has also been included in the table.

Issues / Comments / questions raised during the meeting	Responses provided by PH and Werner Petrick
Is ML 210 at Cape Cross for rock salt?	No, it is for crystallisers from the brine reservoir for salt.
Was it an existing mine (at Mile 68)?	There was mining activities (legacy) at Mile 68 in the past. The Mile 68 salt pan has been mined for salt intermittently during the last 80 years. Remains of those workings can still be seen.
Why pump from Cape Cross?	<p>Abstraction of the brine from within the Mile 68 salt pan for salt crystallisation is not sustainable. The Cape Cross salt pan on the other hand constitutes a large salt and brine resource, which sustains salt production by several salt mineral licence holders across the Cape Cross salt pan. By importing brine from the Cape Cross salt pan, the integrity of the Mile 68 salt pan's substrate will be conserved.</p> <p>If brine is pumped from the Mile 68 salt pan dissolution of the crystallised salt within the pan substrate will occur as 'fresher' or more dilute brine is drawn towards the abstraction point. This in turn draws in even 'fresher' salty water from the areas nearer the sea. Sea water either enters the pan over land during stormy seas and spring tides or underground via the permeable sand berm.</p> <p>Mile 68 offers an area with suitable geotechnical conditions (i.e. the area is underlain with clay). This is very suitable for such crystallizers.</p>
Will the pipeline be above or below the ground?	It is not clear yet whether the pipeline will be above ground or below ground. This will be

	considered as part of the EIA process, and recommendations made (also) from an Environmental perspective.
Is it therefore two different areas under different licenses?	Yes. Gecko recently received environmental clearance for its salt mining project on the Cape Cross salt pan and submitted an application for a Mining Licence (ML) to the MME.  A different ML application will be submitted to MME for the activities at ML 68.
Where will the road be diverted to?  There need to be access points to the sea, across the pipeline from the road.	The road will be diverted to the east of the pan.  Yes, this issue needs to be considered as part of the EIA.  Also, there are some drainage lines with vegetation that needs to be considered.  In the event of a spill, the road could actually act as a “damming structure” for such spilled brine.
There could be a potential impact of access of fisherman to sea due to the pipeline. – impact – needs to be considered – small	This potential impact needs to be considered as part of the EIA. It must however be noted that the pipeline diameter will be relatively small, i.e. 250 mm.
How far is it from the Cape Cross reserve?	PH showed where the Cape Cross Reserve is located in relation to the proposed project, on the locality map.  There is a sign board where the reserve starts and passed, which people are not allowed to enter.
Where exactly will the pipeline be located? Will the pipe be located on edge of road reserve?	Likely on the edge of the road reserve. PH referred to the locality map.

Where is the road reserve?	This needs to be confirmed with the Namibian Roads Authority.
Will pipes corrode or clog up (when enclosing the brine)?	<p>Warm &amp; cold temperature have different effects on the brine. Warmer conditions in an enclosed pipe will cause keep the solutes in solution.</p> <p>Gypsum has already precipitated out of the brine before the point at which the brine will be abstracted at Cape Cross. Clogging of the pipeline due to crystallisation within the pipes will be unlikely. However, routine inspections would need to be carried out in the interest of productivity and preventing extended stoppages.</p>
What will pumping rate be?	The design pump rate / volume for the pipeline is 1.5 million m <sup>3</sup> of brine per annum (maximum) to produce approximately 220000 tons of salt from the envisaged development.
How long is the beach section that borders the project's crystallisers and how wide is the beach along this section? (i.e. beach parallel to the Mile 68 salt works)?	The extent along the coast is ± 3.5 km and the width of the beach berm is from 250 to 370 m.
Does the Gossow Salt Company also use crystallisers?	Yes, they pump from the pan itself. They have constructed crystallisers within their mining licence areas.
It is necessary to consider the impact of the immediate area of impact relating to bittern discharge.	Noted. The impacts associated with the bitterns discharge will be assessed as part of the EIA.
Why is the EPL boundary into beach? Impacts of animals on the beach (i.e. Terns) need to be considered.	<p>The EPL boundaries are provided by MME. The ML boundary (that will be applied for) might however look different in this area, when compared to the EPL boundary.</p> <p>The impacts on animals (and birds) will be assessed as part of the EIA. There are no Damara Terns in the area (mostly Common</p>

	Terns frequent the beaches and potentially any standing water at the Mile 68 pan).
Are there any lichens in the area?	Yes, on the gravel plains.
Will solar power be considered?	Not for the processing. Maybe for offices.
The traffic impact will be excessive. Why not use rail? Safety on roads will be an issue  Traffic issue was done as part of Cape Cross.	A traffic impacts assessment was conducted as part of the EIA process for the Cape Cross Project. The EIA process for the proposed Mile 68 project will also consider the traffic impacts.
Will workers stay at site?	No, there is no plan for accommodation on site, except potentially for security personnel.
There will be a presence of more people creating a risk to more, open access to the seal colony.	It is quite a distance from the project area to the seal colony. Also, the area is patrolled by park wardens from MET and possibly NWR personnel who service the Mile 72 recreation area.
Is there a Jetty at the Cape Cross lodge? Can that not be used for transferring salt onto vessels?	It may have been considered as an option but it is not part of the Cape Cross Salt Project nor this Mile 68 salt project.
Will the final product be in bulk or bags?  Bulk will cause spillage along the road.	Both bulk and bagged options may be used as is the case currently from Cape Cross operations.
Does the Act provide for a shortened EIA process?	Yes, the Environmental Management Act and associated EIA Regulations allows for MET to make a decision after the Scoping phase. Due to the full EIA process conducted for the Cape Cross Project and the fact the issues are relatively similar and well understood, the need for a Scoping phase and then an assessment phase for the Mile 68 project is not regarded a requirement. The Scoping report will include an assessment of the impacts (including specialist input) and an

	EMP. The ultimate decision, however, still lies with MET.
Cumulative impacts need to be assessed.	Yes, noted.
Social issues, i.e. increase in traffic and people impacting on seals need to be considered.  What about sanitation / sewage handling.	Agreed. The EIA process will consider potential soils impacts.  These issues will be addressed as part of the EMP.
Will there be on EMP?	Yes.
Will baseline studies be conducted, also for discharge of bitterns (i.e. marine environment)?	Yes, fauna and flora studies are being undertaken.  A desktop marine Impact assessment will be undertaken. A baseline survey of the macro benthic organisms in the beach substrate may be necessary prior to construction. This will depend on the recommendations of the marine assessment.
How far will discharge point be? It is important to understand the baseline of the benthic communities / organisms.	Bitterns will be discharged onto the beach.  See response above.
Is any aquaculture planned?	No, the pans will become an ecosystem, containing algae and bacteria which survive the hyper saline conditions.
Any additional infrastructure to be constructed, i.e. telecom lines, etc.?  No powerline? No diesel.	No other lines are planned. No power supply infrastructure to the site is planned but electricity requirements will rely on diesel generators.
Is it sustainable? If another power supply is required at a later stage – what then?	This would require an EIA amendment.
The status of road will change with the increased traffic.	Noted.

**4. MEETING CLOSURE**

PH closed the meeting and thanked all for attending. He informed the attendees that they could take another week (after the meeting) to submit any further comments.





## Comments & Responses Report:

The following provides more responses to the comments and concerns raised during the public meeting and focus group meeting as a result of the outcome of the assessments undertaken. Reference is made to the specific sections in the report that would address the question or concern.

### Important points of concern received from people who attended the public meetings.

Comments, Concerns & Questions	Responses & Actions
<p><b>Mr. Gossow (current licence holder of ML82DE&amp;F):</b></p> <p>The C34 Road reserve is not a registered road reserve. The pipeline following the road reserve will also require an environmental clearance. Will the pipeline be above or below the ground?</p>	<p>The activities associated with the proposed brine pipeline are part of the EIA process being undertaken.</p> <p>It is not clear yet whether the pipeline will be above ground or below ground. This will be considered as part of the EIA process, and recommendations made (also) from an Environmental perspective.</p> <p><b>Sections 3.2, 3.5, 3.6, 4 and 6.2</b> cover the question of the position of the pipeline. It was decided to have the pipeline lie above ground and possibly on concrete plinths. The potential impacts for this were assessed.</p>
<p>What will the quantity of brine be?</p>	<p>The design pump rate / volume for the pipeline is 1.5 million m<sup>3</sup> of brine per annum (maximum) to produce approximately 220 000 tons of salt from the envisaged development. The project description covers this aspect in <b>section 4.2.2</b></p>
<p>Other questions were asked which were relevant to the mineral licencing, the EAP undertaking the project and why the project is planned for this location.</p>	<p>The Ministry of Mines and Energy can assist with regards to mineral licences and those officially registered or granted. Any dispute regarding the extent of the licences can only be resolved by this ministry. Any previous statement made during the EIA for the EPL4426 environmental clearance would need to be subservient to the official licences granted.</p> <p>The curriculum vitae of the EAP is published herewith in <b>Appendix A</b>.</p> <p>Gecko Salt (Pty) Ltd was granted the EPL4426 by MME and thereafter awarded environmental clearance for exploration. Gecko had considered mining salt over areas of the salt pan that were</p>

	<p>not already granted to another licence holder. See further explanation below.</p> <p>See the report <b>Introduction, sections 5.1 and 6.5</b> for further discussions related to land use.</p>
<p><b>Mr. Ilston:</b></p> <p>I don't see the need for the pipeline and to pump the brine to Mile 68?</p> <p>What tests have been done to state that abstraction of the brine from within the Mile 68 salt pan for salt crystallisation is not sustainable and would result in the rapid dissolution of the existing rock salt and cause widespread subsidence of the constructed crystallisers - impacting their integrity?</p> <p>Why not stay at Cape Cross - if you can do the same at Cape cross?</p>	<p>Visual observations were made of the pan around the northern edge of salt pan where a pump was situated. Subsidence and a widening of a channel appeared from the time of abstraction from this area. See overview map from July 2018 in <b>Appendix D</b> and <b>sections 5.1 and 5.3.</b></p> <p>For this reason abstraction of brine from the Mile 68 salt pan will not be sustainable. This is why brine will be pumped from Cape Cross salt pan. See <b>section 4.2.2</b></p> <p>Gecko's objective to increase their salt yield at Cape Cross will be best served by using the Mile 68 salt pan that is still available outside the ML82DE&amp;F areas.</p>
<p>Have you calculated traffic and what the impacts will be on the roads?</p>	<p>A traffic impacts assessment was conducted as part of the EIA process for the Cape Cross Project (<b>Request link from the proponent</b>). The EIA process for the proposed Mile 68 project will also consider the traffic impacts. The traffic safety audit is found in <b>Appendix E.</b></p>

**Important points of concern received from officials of the Ministry of Fisheries & Marine Resources.**

<b>Comments, Concerns &amp; Questions</b>	<b>Responses &amp; Actions</b>
<p>Was it an existing mine (at Mile 68)?</p>	<p>The Mile 68 salt pan has been mined for salt intermittently during the last 80 years. Remains of those workings can still be seen. Refer to <b>Appendix D</b> for the historical imagery of the pan. <b>Sections 5.1</b> describe the mining legacy on the saline pan.</p>
<p>Why pump from Cape Cross?</p>	<p>Abstraction of the brine from within the Mile 68 salt pan for salt crystallisation is not sustainable. The Cape Cross salt pan on the other hand constitutes a large salt and brine resource, which sustains salt production by several salt mineral licence holders across the Cape Cross salt pan. By importing brine from the Cape Cross salt pan, the</p>

	<p>integrity of the Mile 68 salt pan’s substrate will be conserved. <b>Sections 3.5, 3.6 and 4.2.2</b> refer to this aspect.</p> <p>If brine is pumped from the Mile 68 salt pan dissolution of the crystallised salt within the pan substrate will occur as ‘fresher’ or more dilute brine is drawn towards the abstraction point. This in turn draws in even ‘fresher’ salty water from the areas nearer the sea. Sea water either enters the pan over land during stormy seas and spring tides or underground via the permeable sand berm.</p> <p>Mile 68 offers an area with suitable geotechnical conditions (i.e. the area is underlain with clay). This is very suitable for such crystallizers. Refer to <b>section 5.3</b> for this aspect.</p>
<p>Is it therefore two different areas under different licenses?</p>	<p>Yes. Gecko recently received environmental clearance for its salt mining project on the Cape Cross salt pan and applied for a Mining Licence (ML) to the MME.</p> <p>A different ML application will be submitted to MME for the activities at Mile 68.</p>
<p>Where will the road be diverted to?  There need to be access points to the sea, across the pipeline from the road.</p>	<p>The road will be diverted to the east of the pan. Refer to the traffic study in <b>Appendix E</b> and <b>section 5.10</b> and <b>6.6</b>.</p> <p>This issue was considered as part of the EIA. The pipeline is to be constructed on the eastern side of the road. See <b>sections 3.2, 3.5, 3.6, and 6.2</b></p> <p>Also, there are some drainage lines with vegetation that needs to be considered. See <b>sections 5.4.2</b> and <b>6.1</b>.</p>
<p>There could be a potential impact of access of fisherman to sea due to the pipeline. – impact – needs to be considered – small</p>	<p>This potential impact was considered as part of the EIA. It must however be noted that the pipeline diameter will be relatively small, i.e. 250 mm. It was decided to place it on the eastern side of the road. See <b>sections 3.2, 3.5, 3.6</b> and <b>4.1</b></p>
<p>Where exactly will the pipeline be located? Will the pipe be located on edge of road reserve?</p>	<p>Likely on the edge of the road reserve. The flora and fauna studies assessed this aspect. See <b>Appendix E</b> and <b>sections 5.4, 5.5, 6.1, 6.2</b> and <b>6.5</b></p>

<p>Will pipes corrode or clog up (when enclosing the brine)?</p>	<p>Warm &amp; cold temperature have different effects on the brine. Warmer conditions in an enclosed pipe will cause keep the solutes in solution.</p> <p>Gypsum has already precipitated out of the brine before the point at which the brine will be abstracted at Cape Cross. Clogging of the pipeline due to crystallisation within the pipes will be unlikely. However, routine inspections would need to carried out in the interest of productivity and preventing stoppages.</p> <p>The project description in <b>section 4</b> deals with this aspect in some detail.</p>
<p>How long is the beach section that borders the project’s crystallisers and how wide is the beach along this section? (i.e. beach parallel to the Mile 68 salt works)?</p>	<p>The extent along the coast is ± 3.5 km and the width of the beach berm is from 250 to 370 m. <b>Section 5.5, 5.7, 6.2</b> and <b>6.3</b> deal with aspects related to the beach impacts and coastal hummock habitat.</p>
<p>Does the Gossow Salt Company also use crystallisers?</p>	<p>Yes, they pump from the pan itself. They have constructed crystallisers within their mining licence areas. <b>Section 5.1</b> looks at land use in detail.</p>
<p>It is necessary to consider the impact of the immediate area of impact relating to bittern discharge.</p>	<p>This was noted. The impacts associated with the bitterns discharge were assessed as part of the EIA and a marine impact assessment was carried out. See <b>Appendix E</b> and <b>sections 5.6</b> and <b>6.3</b> of the report.</p>
<p>Why is the EPL boundary into beach? Impacts of animals on the beach (i.e. Terns) need to be considered.</p>	<p>The EPL boundaries are provided by MME. The ML boundary (that will be applied for) might however look different in this area, when compared to the EPL boundary. See the <b>introduction</b> and <b>section 5.1</b> for this aspect.</p> <p>The impacts on animals (and birds) was assessed as part of the EIA. There are no Damara Terns in the area (mostly Common Terns frequent the beaches and potentially any standing water at the Mile 68 pan). See the fauna study in Appendix E and in <b>sections 5.5</b> and <b>6.2</b></p>
<p>Are there any lichens in the area?</p>	<p>Yes, on the gravel plains. See <b>section 5.4.1</b></p>

<p>Will solar power be considered?</p>	<p>Not for the processing. Maybe for offices. See <b>section 4.2.5</b>.</p>
<p>The traffic impact will be excessive. Why not use rail? Safety on roads will be an issue  Traffic issue was done as part of Cape Cross.</p>	<p>A traffic impacts assessment was conducted as part of the EIA process for the Cape Cross Project (<b>Ask the proponent for a link to the study</b>). The EIA process for the proposed Mile 68 project will also consider the traffic impacts (See the <b>Appendix E</b> and <b>section 5.10</b> and <b>6.6</b></p>
<p>Will workers stay at site?</p>	<p>Initially there is no plan for accommodation on site, except potentially for security personnel. However, the need to provide accommodation for shift staff at Mile 68 has been considered and assessed. See <b>sections 5.9</b> and <b>6.5</b>.</p>
<p>There will be a presence of more people creating a risk to more, open access to the seal colony.</p>	<p>It is quite a distance from the project area to the seal colony. Also, the area is patrolled by park wardens from MET and possibly NWR personnel who service the Mile 72 recreation area. See <b>section 5.7</b> and <b>6.5</b></p>
<p>Is there a Jetty at the Cape Cross lodge? Can that not be used for transferring salt onto vessels?</p>	<p>It may have been considered as an option but it is not part of the Cape Cross Salt Project nor this Mile 68 salt project.</p>
<p>Will the final product be in bulk or bags?  Bulk will cause spillage along the road.</p>	<p>Both bulk and bagged options may be used as is the case currently from Cape Cross operations. See <b>section 4.2.7</b></p>
<p>Does the Act provide for a shortened EIA process?</p>	<p>Yes, the Environmental Management Act and associated EIA Regulations allows for MET to make a decision after the Scoping phase. Due to the full EIA process conducted for the Cape Cross Project and the fact the issues are relatively similar and well understood, the need for a Scoping phase and then an assessment phase for the Mile 68 project is not regarded a requirement. The Scoping report will include an assessment of the impacts (including specialist input) and an EMP. The ultimate decision, however, still lies with MET. See <b>section 3</b> for the full explanation of the process followed.</p>
<p>Cumulative impacts need to be assessed.</p>	<p>Yes, noted.</p>

<p>Social issues, i.e. increase in traffic and people impacting on seals need to be considered.</p> <p>What about sanitation / sewage handling.</p>	<p>Agreed. The EIA process will consider potential seal impacts. See <b>section 5.8</b></p> <p>These issues will be addressed as part of the EMP. See <b>section 4.</b></p>
<p>Will there be on EMP?</p>	<p>Yes. See <b>Appendix F</b></p>
<p>Will baseline studies be conducted, also for discharge of bitterns (i.e. marine environment)?</p>	<p>Yes, fauna and flora studies were undertaken. See <b>Appendix E</b></p> <p>A desktop marine Impact assessment was undertaken. A baseline survey of the macro benthic organisms in the beach substrate may be necessary prior to construction. This will depend on the recommendations of the marine assessment. See <b>Appendix E</b> for the study and <b>sections 5.6</b> for the summary and <b>6.3</b> for the marine impact assessment.</p>
<p>How far will discharge point be? It is important to understand the baseline of the benthic communities / organisms.</p>	<p>Bitterns will be discharged onto the beach.</p> <p>The marine study provides recommendations as summarised in the assessment of <b>section 6.3.</b></p>
<p>Any additional infrastructure to be constructed, i.e. telecom lines, etc.?</p> <p>No powerline? No diesel.</p>	<p>No other lines are planned. No power supply infrastructure to the site is planned but electricity requirements will rely on diesel generators. See <b>section 4</b> for the project description.</p>
<p>Is 'chosen power option' sustainable? If another power supply is required at a later stage – what then?</p>	<p>This would require an EIA amendment.</p>

<b>Initial Stakeholder &amp; IAP list</b>		
<b>Name &amp; Surname</b>	<b>Street Address</b>	<b>Status Owner/ Manager/ Landlord</b>
Mike Illston (TY Investments (Pty) Ltd) & Jerome Gaya	Swakopmund	Director / Unknown
Joel Shafashike (Cape Cross Salt (Pty) Ltd & Konias Shikongo (Cape Cross Salt Employees' Equity Trust)	not given	Director & Trustee
Jürgen Gossow (Rolf Gossow Holdings (Pty) Ltd	Swakopmund	Owner
Roads Authority	Windhoek	
Mr. Willem Goeiemann (Ministry of Works & Transport)	Windhoek	Permanent Secretary
Ms Monica Uupindi (Personal Assistant)	Windhoek	Personal Assistant
Ministry of Works & Transport (Swakopmund Regional Office)	Swakopmund	
Metals Namibia (Pty) Ltd - EPL 3308	Unknown	
Mr. Percy W. Misika (Ministry of Agriculture & Water)	Windhoek	Permanent Secretary
Joseph Amunime (MAWF)	Windhoek	Personal Assistant
Ms. Sophia Kasheeta (MAWF)	Windhoek	Deputy Permanent Secretary (DAD)
Dr Moses Maurihungirire (Ministry of Fisheries & Marine Resources)	Windhoek	Permanent Secretary
Mr Ueritjiua Kauaria (MFMR)	Windhoek	Deputy Permanent Secretary
Ms. Anna Gideon (MME)	Windhoek	Senior Private Secretary
Mr Reinhardt Stevens Ochs (Henties Bay Municipality)	Henties Bay	Chief Executive Officer
Jeremias Khaiseb (Henties Bay Municipality)	Henties Bay	
Mrs. Bella Situde (Governor's Office)	Swakopmund	Personal Assistant
Erongo Regional Office - Local Government	Swakopmund	Chief Regional Officer - Erongo Region (Regional Government)
Mrs Olga Kazombiaze (MET - Parks)	Windhoek	Parks Department Head in Windhoek
Siegried Gawiseb (Dorob National Park - Chief Warden)	Swakopmund	Chief Warden
Ms. Anja Kreiner	Swakopmund	Environmental Officer for MFMR & Coastal Management Committee
Mr. Johan Klein (Swakopmund Salt Company)	Swakopmund	Director / Owner



## **Public Review Response: 7<sup>th</sup> October 2020**

Dear Philip

I received the EIA from Anja copied here. I have not looked at the entire report but looked at the bird section and maps in the Fauna re. There has been no Damara Tern breeding success monitoring for some time now. I do recall having nest records in the southern part of the salt mining claim. I would advise another quick survey to establish the size and relevance of this colony. I recall at least 12 nests both in and on the edge of the salt pan. Generally birds return to the same area, although there have been some shifts. When with MEFT, I witnessed the extinction of the colony at Aphrodites and Eco-village with the development disturbance. Those adult birds were individually marked and we were not able to establish where they displaced to. Generally displaced birds are not successful and die out.

At Mile 4 Salt Works a small number of Damara Terns continue to breed but their numbers are in decline.

I am not sure who is willing and able to establish the Mile 68 situation reliably, the breeding should start in late October?

Best wishes

Rod Braby

Marine Spatial Management and Governance Project - MARISMA  
Regional Technical Adviser

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

39 Anton Lubowski Street  
P.O. Box 7123, Swakopmund

T +264 64 429650

F +264 64 429651

C +264 811473518

S rod.braby

E [rodney.braby@giz.de](mailto:rodney.braby@giz.de)

I [www.giz.de](http://www.giz.de)

I [www.benguelacc.org/marisma](http://www.benguelacc.org/marisma)

---

Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH;

Sitz der Gesellschaft Bonn und Eschborn/Registered offices Bonn and Eschborn, Germany;

Registergericht/Registered at Amtsgericht Bonn, Germany; Eintragungs-Nr./Registration no. HRB 18384 und/and Amtsgericht Frankfurt am Main, Germany; Eintragungs-Nr./Registration no. HRB 12394;

USt-IdNr./VAT ID no. DE 113891176;

Vorsitzender des Aufsichtsrats/Chairman of the Supervisory Board: Martin Jaeger, Staatssekretaer/State Secretary;

Vorstand/Management Board: Tanja Goenner (Vorstandssprecherin/Chair of the Management Board), Ingrid-Gabriela Hoven, Thorsten Schaefer-Guembel

## 12. APPENDIX C

### BASELINE IMAGERY – ROADSIDE ALONG BRINE PIPELINE ROUTE



	
1. Waypoint (WP) 2342; view east	2. WP2342; Roads Authority brine pit.
	
3. WP2342; view north (east side of road where wash comes towards saline pan)	4. WP2342; view north west (west side of road)
	
5. WP2342; view south	6. North of WP2342; view NW



	
7. Further north of WP2342; view NW	8. WP2343; view ESE where bypass road comes out to meet current coastal road.
	
9. WP2343; view NW; dolerite ridge intersects road	10. WP2343; view SE; wash intersects road and enters smaller pan north of project's saline pan
	
11. Dolerite ridge north of WP2343; view W	12. Dolerite ridge close-up showing lichen growth



13. Turn off to 'Dead Sea'



14. WP2345 view SW; shallow wash to left; small pencil bushes on gravel plain above wash embankment.



15. WP2345 view NW



16. WP2345 view SE



17. WP2346 view NW



18. WP2346 view SE



19. Mile 72 intersection; view NW



20. WP2347 view west; large wash intersects road.



21. WP2347 view NW; large wash intersects road.



22. WP2348 view W; large wash intersects road flowing NW towards Cape Cross saline pan



23. WP2348 view N large wash intersects road flowing NW towards Cape Cross saline pan



24. WP2348 view E across road.





25. WP2349 view N; wash on east side of road.



26. WP2356 view W of wash that intersects the road.



27. WP2356 view E of wash that intersects the road.



28. WP2356 view N with the wash's embankment in the background. Brine pipeline will travel west from this point following the contour of the Cape Cross Pan.

### 13. APPENDIX D

## SATELLITE IMAGERY OF THE AREA TAKEN AT DIFFERENT TIMES DURING THE PAST DECADE

### Planned Road Re-Route:



July 2018 - Overview





**July 2018**



**July 2018**



**July 2018**



**July 2018**



**July 2018**





**July 2018**

**Accessory Works Area – between planned ML boundary and existing ML82DEF**



**March 2013**



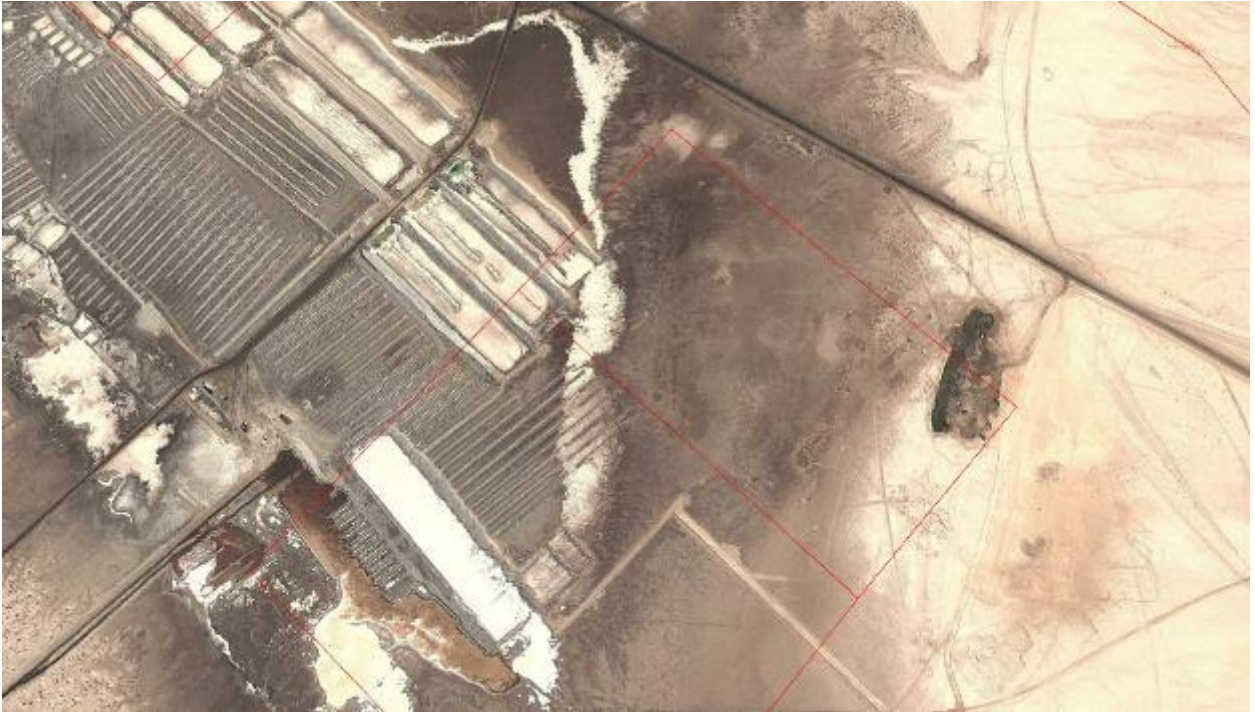
**March 2016**



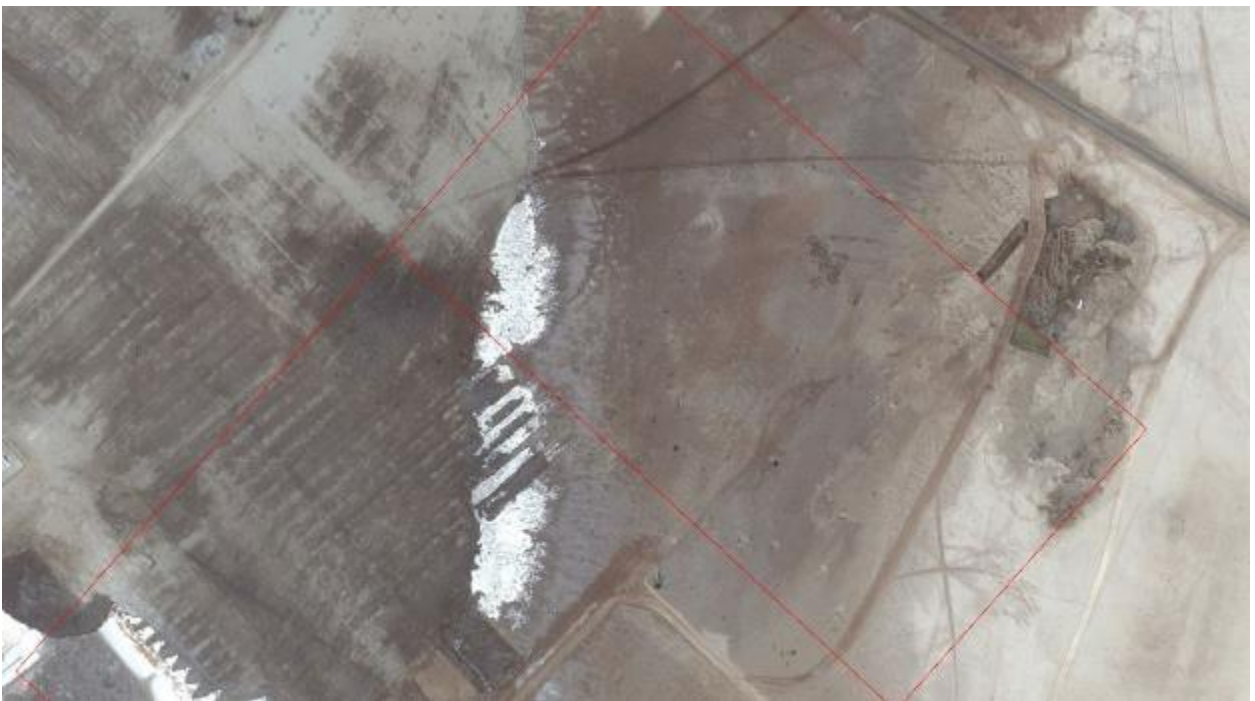
**July 2018 – Shows disturbance of rock outcrops – Dolerite rock removal**



### Salt Pan



**March 2013**



**March 2016**





**March 2013**



**March 2016**





**March 2016**



**July 2018**



**March 2013 – Shipwreck salvage**



**May 2013 – Rehabilitation of Salvage area**





**March 2013 - Overview**



**March 2016 – Overview**



**July 2018 – Overview**

## **14. APPENDIX E**



## **15.APPENDIX F**