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April 2023

Memorandum

Subject: **EIA APPLICATION APP-001270**

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE ABOVE GROUND POWERLINE TO THE PROPOSED TUMAS PROJECT IN THE ERONGO REGION OF NAMIBIA

Submission of the final EIA (Addendum) Report

The EIA process for the proposed Tumas Project and Associated Infrastructure has been completed and the final EIA Report and Environmental Management Plans (EMPs) and other relevant Appendices compiled. The Scoping Report for the proposed Tumas Project and associated infrastructure has been approved by the Ministry of Environment, Forestry and Tourism (MEFT): Department of Environmental Affairs (DEA) in January 2022.

The Final EIA Report was submitted to MEFT: DEA (i.e. office of the Environmental Commissioner) and the relevant Competent Authorities on the 5th of April 2023, for their final review and decision regarding the application.

The Final EIA Addendum Report for the above ground Powerline to the proposed Tumas Project is herewith attached.

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PROPOSED TUMAS PROJECT AND ASSOCIATED INFRASTRUCTURE IN THE ERONGO REGION OF NAMIBIA

PROPOSED NEW POWERLINE

ENVIRONMENTAL IMPACT ASSESSMENT ADDENDUM REPORT

Prepared for: Reptile Uranium Namibia (Pty) Ltd

April 2023

Reptile Uranium Namibia (Pty) Ltd

DOCUMENT CONTROL

Report Title	EIA ADDENDUM REPORT FOR THE PROPOSED TUMAS PROJECT AND ASSOCIATED INFRASTRUCTURE: PROPOSED NEW POWERLINE	
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Project Number	NSP2020RUN	
Report Number	3	
Status	**Final EIA Report for decision-making**	
Issue Date	April 2023	

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EXECUTIVE SUMMARY

1. INTRODUCTION

This executive summary provides a synopsis of the Environmental Impact Assessment (EIA) Addendum Report prepared as part of the EIA process executed by Namisun Environmental Projects and Development (Namisun) for the proposed powerline for the Tumas mining and processing Project by Reptile Uranium Namibia (Pty) Ltd (RUN).

RUN submitted an application to apply to the MME to convert, in part, its Exclusive Prospecting Licences (EPLs) 3496 and 3497 to a Mining Licence (ML). RUN is a wholly owned subsidiary of Reptile Mineral Resources and Exploration (Pty) Ltd (RMR) who manages and conducts the exploration activities on RUN's tenements. RUN and RMR are both wholly owned subsidiaries of Deep Yellow Ltd. (Deep Yellow), an Australian listed company.

The Tumas mining and processing Project area (i.e. "Tumas Project Area") is located in the Namib Naukluft National Park (NNNP) in the Erongo Region, approximately 40 km east from Walvis Bay and can be reached via the C28 or the C14 roads (refer to Figure 1 for the regional locality map of the proposed Tumas Project area).

Based on the exploration results and the Pre-Feasibility Study (PFS) that was completed in January 2021 for the Tumas Project, RUN applied for a ML to mine the uranium bearing ore through open-pit mining of the Tumas paleochannel and to process this material on site within the proposed ML area. Run plans to develop the Tumas mining, processing and associated activities on the proposed ML area; construct the proposed powerline; and construct the proposed water pipeline.

This EIA Addendum Report covers the proposed construction of a 132 kV overhead transmission powerline, to supply power to the Tumas mining and processing activities. The proposed powerline will be ~44 km long, following a route parallel to an existing 66 kV transmission line to the Langer Heinrich Mine. This line will commence at the Kuiseb substation, which is an existing 220/132 kV NamPower substation, and terminate at a 132/11 kV substation to be constructed at the Tumas Project site (refer to Figure 1 for the proposed route of the powerline, i.e. the "Project area").

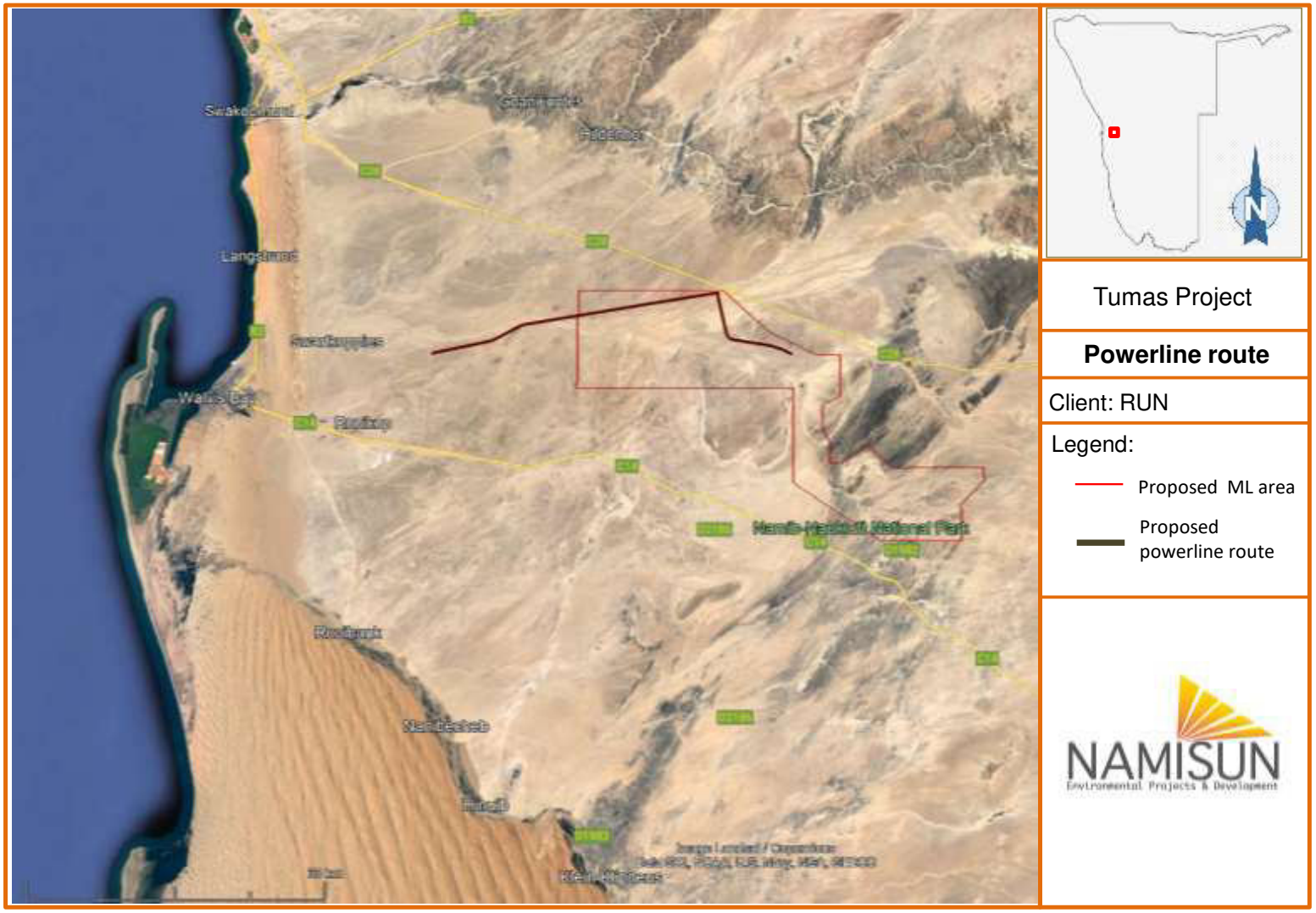

FIGURE 1: REGIONAL LOCALITY OF THE TUMAS PROJECT AREA AND THE PROPOSED POWERLINE ROUTE

2. APPROACH TO THE EIA PROCESS

Prior to commencing with the development of the proposed mining, processing and associated activities, RUN must obtain a Mining Licence (ML) from MME. However, before a ML can be granted by MME, an EIA needs to be undertaken and an Environmental Clearance Certificate (ECC) issued by the Ministry of Environment, Forestry and Tourism (MEFT): Department of Environmental Affairs (DEA).

EIA applications are regulated by the MEFT in terms of the Environmental Management Act, 7 of 2007, which was gazetted on 27 December 2007 (Government Gazette No. 3966). The Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) were promulgated in January 2012. The Environmental Management Act, 7 of 2007 and the associated EIA Regulations, 2012, provide for the control of certain activities that are listed in Government Notice (GN) No. 29. These activities cannot proceed until an ECC is obtained from the MEFT.

An Application for an ECC was submitted to the MME (Competent Authority for the mining, processing and associated activities on the proposed ML area) and MEFT (DEA). A separate Application for ECC for the construction of the powerline was submitted to the MME (Energy Directorate) (i.e. Competent Authority) and MEFT. However, a parallel EIA process is being conducted for the mining, processing and associated activities and the construction of the powerline (as well as the water supply pipeline – refer to Appendix 4 of Main EIA Report for the Tums Project).

Note: The detailed description of EIA process is covered in Sections 1.4 and 3.2 of the main EIA Report for the Tumas Project and will not be repeated in this report.

As a 'full EIA process' is required for the proposed Tumas Project, a Screening (and Project initiation) phase; Scoping Phase and Impact Assessment phase were conducted, including a series of steps to ensure compliance with the EIA Regulations 2012 as set out in GN No. 30 and the objectives listed above. The process involves an open, participatory approach to ensure that all impacts are identified and that relevant information on environmental and social impacts is provided as part of the decision-making process. A flowchart illustrating the regulated EIA application (i.e. scoping and assessment phases) process is presented in Figure 2.

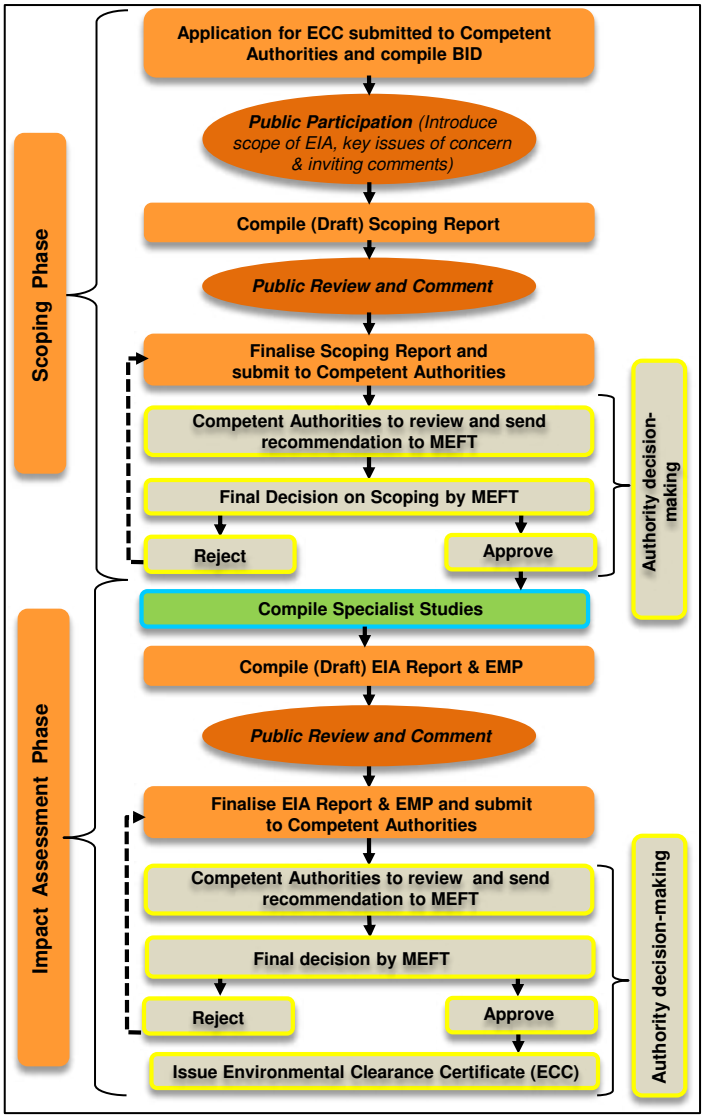

FIGURE 2: EIA PROCESS FOR THE PROPOSED TUMAS PROJECT (INCLUDING THE POWERLINE)

At the end of the scoping phase of the EIA for the Tumas Project, Namisun prepared a Final Scoping Report in compliance with Section 8 of the EIA Regulations (2012) and was informed by all comments received during the public participation process.

The Scoping Report was accepted by MEFT in December 2021.

The proposed terms of reference for further specialist investigations associated with the proposed powerline were developed as a result of the Scoping Phase and presented in the Scoping Report. The Environmental Team took the terms of reference and the baseline work conducted during the Screening and Scoping phases into consideration to assess the various impacts that the powerline project may have on the physical, social and economic environment.

This EIA (Addendum) Report relates to the proposed powerline and has been prepared in compliance with Section 15(2) of the EIA Regulations 2012. The specialist studies and other relevant information / assessments have been integrated into this report.

This EIA (Addendum) Report describes all activities and infrastructure associated with the proposed powerline. Potential impacts associated with the powerline activities and infrastructure are also assessed in this report. The EMP for the proposed overhead powerline to the Tumas Project is attached as Appendix 16 of the main Tumas Project EIA Report.

Opportunity to comment

I&APs were invited to comment on this EIA (addendum) Report (with accompanying EMP), which was available for a review & comment period from **13 February to 17 March 2023**. Comments were sent to Namisun at the address, telephone number, or e-mail address shown below by **17 March 2023.**

NAMISUN
Environmental Projects & Development

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3. DESCRIPTION OF THE PROPOSED POWERLINE AND KEY ALTERNATIVES CONSIDERED

The powerline will be a 132 kV, ~44 km overhead transmission line, that will commence at Kuiseb substation, which is an existing 220/132 kV NamPower substation, and terminate at a 132/11 kV substation to be constructed at the Tumas Project site. The proposed route of the powerline is largely parallel to an existing 66 kV powerline to the Langer Heinrich Mine. At the C28 Road, the powerline will follow a south-easterly alignment, adjacent to the proposed new site access road / service corridor, to the 132/11 kV substation at the Tumas process plant area. This last section of the powerline would be ~12 km long (refer to Figure 1). A new water pipeline will also be constructed for the Tumas Project. The last section of the pipeline will follow the same service corridor as for the powerline and will likely be constructed underground (refer to the Addendum Report for the proposed new water pipeline in Appendix 4 of the Main Tumas Project EIA Report).

The proposed powerline will be designed and constructed to the established national codes and international standards, including the Namibian Electricity Safety Code (2009) and the Namibian Transmission Grid Code (2007).

The Right of Way (ROW) for the powerline will be required to provide sufficient separation to surrounding structures.

The aluminium conductors for the 132 kV powerline will be strung on self-supporting steel monopole structures with a height of approximately 24 meters. Typical steel monopole structures for 132 kV transmission is shown in Figure 3.

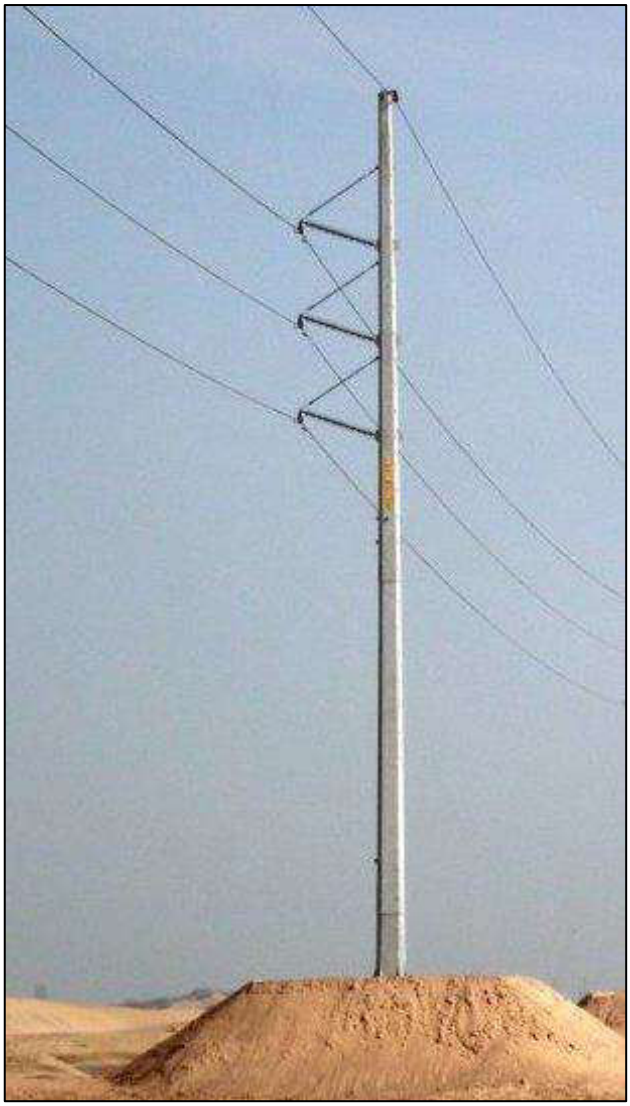

FIGURE 3: EXAMPLE OF A TYPICAL 132 KV STEEL MONO-POLE POWERLINE, SHOWING THREE CONDUCTORS AND AN EARTH WIRE ON TOP

The existing Kuiseb substation will be upgraded to accommodate the connection of the new 132 kV powerline to the Tumas Project. The switchgear at Kuiseb substation is Gas Insulated Switchgear (GIS) with Sulfur Hexafluouride (SF6) gas. It is expected that the upgrade to the Kuiseb substation will not require an expansion of the boundaries to the existing substation.

The proposed substation at the Tumas Project site will consist of air-insulated outdoor switchgear with a 132/11 kV step-down oil-filled transformer. The oil will be a mineral based oil and the transformer will be installed within a concrete bunded area sufficiently sized to contain all of the oil volume within the transformer. The expected oil volume of the transformer is up to 15,000 litres. The expected area for the substation is 50 metres by 75 metres.

The various power supply options to the mine that were considered by RUN are described in section 5.3 of the Main EIA Report for the Tumas Project.

The transmission line will follow the existing 66 kV Kuiseb-Langer Heinrich Mine transmission line corridor in order to have minimal cumulative impacts on avifauna. It was considered appropriate to follow the route of the existing powerline as this is an established linear infrastructure corridor.

3.1 Construction activities

There is no need for any large-scale land clearance for the installation of power poles. Only the small areas where the digging of the mono-pole foundations will take place will be affected by localized and largely non-intrusive construction activities, including the preparation of each site.

A small temporary construction assembly area will be required adjacent to the powerline, at specific locations, and switchyard. Equipment and materials will be stored in the laydown facilities at the Tumas Project site and transported by regular trucks to the point of installation.

All components for the powerline (steel, conductors, and insulators, etc.) will be transported on the C28 road to site on low-bed trailers and then transported along the existing service road of the 66 kV powerline.

The poles will arrive pre-assembled. Mobile cranes will be used to place the poles in their foundation holes. Concrete will be mixed and poured onsite for the foundations of the monopoles and for the foundation and platform of the substation and for the plinths. Subsequently all concrete constituents (crushed stone, cement, water and sand) will have to be transported to site.

The total peak workforce on the powerline and switchyard is expected to be around 40 workers.

On current estimates, subject to authorisation, the construction phase is expected to take ~12 months to complete.

3.2 Powerline Operational phase

The main activities will include routine inspections and maintenance as required.

3.3 Decommissioning

At a conceptual level, decommissioning can be considered a reverse of the construction phase with the demolition and removal of most of the infrastructure (i.e. the new powerline) very similar to the construction phase. However, in the context of the powerline, it might be considered to maintain the powerline to provide any possible future network development and power distribution in the area.

4. DESCRIPTION OF THE CURRENT / RECEIVING ENVIRONMENT

An understanding of the environmental context within which the proposed powerline is located is important to better understand any sensitivities and to help assess potential impacts.

The receiving environment is described in detail in Section 6 of the EIA Addendum Report and key considerations summarised in the sections below.

4.1 Existing Infrastructure

The proposed powerline will connect to the existing Kuiseb substation, located ~15 km north-east of Walvis Bay. The Kuiseb Substation is fairly congested in terms of existing transmission lines extending to and from this substation. The existing 66 kV transmission line to the Langer Heinrich mine, amongst others, extends from the substation, in an east-north-easterly direction. Various other lines extend in a northerly direction from the Kuiseb substation, towards the Walmund substation. To ensure future planning and possible crossing of other (existing and planned transmission lines from the Kuiseb substation) RUN will continue to liaise and consult with NamPower.

4.2 Topography, Soils and hydrology

The section of the powerline between the Kuiseb substation and the C28 Road is located predominantly on a flat plain. The powerline route is however slightly diverted to the north to avoid a dolerite ridge (stretching in a south-west to north-easterly direction for ±2 km), located approximately 7.8 km from the Kuiseb substation. The route also crosses a few minor drainage lines. The section of the powerline, along the service corridor to the Tumas process plant area, will pass near a marble ridge area ending at the proposed new Tumas Substation. Between the C28 and the proposed Tumas process plant and substation area lies rocky outcrops (i.e. granites) providing higher elevation.

The soils have a high permeability and low clay and carbon content making them susceptible to erosion and compaction. The soils are associated with an evaporite layer either at surface as a crust and/or as a calcrete layer deeper in the soil profile. These layers may be significant to the ecological balance of the desert environment because they are believed to retain water content in the soil horizons beneath the crust and above the calcrete layer. The biological soil crust of the Central Namib has the effect of binding the surface of the soil that is not easily penetrated by wind. It has the effect of reducing erosion of fine-grained soil material and thereby minimising dust generation during strong winds.

The proposed powerline route does not cross any of the major rivers (i.e. Kuiseb, River and Swakop River) in the area, however it does cross several shallow washes / drainage lines and the Tumas River. The smaller drainage lines are poorly defined and are often only conspicuous by the perennial plants they support. These plants grow slowly under desert conditions and cannot be easily replaced when destroyed. Rainfall and associated surface water flows are sporadic, however this surface water flow plays a significant role in the desert ecosystem. The ground and surface (when it occurs) water within these shallow washes / drainage lines and the Tumas River are therefore very important from an ecosystem point of view.

4.3 Biodiversity

The ecosystem in the general area surrounding the proposed powerline route is within a largely undisturbed area within the NNNP. There are however several existing powerlines and associated service roads in the area.

4.3.1 Habitats

In broad terms, habitats are places where organisms live. Habitat requirements include characteristics such as availability of required nutrients, energy, water, the absence of toxins, shelter, geophysical conditions, and suitable micro-climatic conditions. In total 5 habitat types were defined for the powerline route based on their physical and ecological characteristics. The powerline route crosses sandy and gravel plains supporting very sparse grasslands interrupted by mostly shallow washes and the Tumas River, which is a large and sheltered drainage line with a high proportion of Salsola shrubs. Diversity on the plains is very low compared to most of study area, and it becomes lower as you move westwards. There is very little apparent vegetation outside of the washes. The powerline will run through lichen field areas which have been categorised as highly sensitive areas.

4.3.2 Flora

Flora within the powerline route between the Kuiseb substation and the service corridor to the Tumas Process Plant

Within the western washes the perennial vegetation is dominated by *Zygophyllum stapfii, Salsola* sp. and, further west, *Arthraerua leubnitziae*. *Adenolobus pechuelii* occurs occasionally and herbs and grasses are present in low densities, including endemics such as *Hermbstaedtia spathulifolia, Monechma cleomoides, Heliotropium oliveranum, Blepharis grossa, Cleome foliosa v. foliosa, Sporobolus nebulosus, Aizoanthemum rehmannii* and *Jamesbrittenia barbata.* The plains incised by these washes are largely devoid of vegetation except for scattered *Z. stapffii, A. leubnitziae* and (occasionally) very sparse annual grasses, mostly *Stipagrostis uniplumis* and *S. hirtigluma.* The lichen field carries a mixture of crustose and foliose lichens, which is typical of the more diverse sections of the field, and a distinct biological crust is present.

Flora within the service corridor

The service corridor (which includes the powerline extension from the C28 to the site) will run through virgin terrain and pass near a sensitive area – a marble ridge and will run through Lichen fields that are categorised as highly sensitive areas.

This part of the central Namib supports one of the world's most species-rich lichen fields. Many of these species are endemic to the Namib Desert and all possible life forms of lichens are present (crustose, foliose, fruticose, saxicolous, vagrants). Lichens mostly grow on gravel and rocks but cover changes in density across the landscape. Habitats receiving more moisture such as slight rises, ridges and hills usually show a denser cover of lichens than the more level areas.

Although not comparable to the famous lichen fields to the north-west of the Tumas Project area, a dense cover of lichens can be observed in the western reaches of the Project area - particularly on quartz gravel. The lichen cover is not continuous, but mainly limited to gravel patches. These lichens are also an indicator for biological soil crusts which are also environmentally sensitive areas. These crusts are formed by a mix of cyanobacteria, algae, fungi and mosses and are important soil stabiliser and fertilisers in deserts.

4.3.3 *Avifauna*

Species potentially affected by the proposed overhead powerline, once operational and at greatest risk would be those larger species flying at pylon height (e.g. bustards, eagles, vultures); nocturnal travellers (e.g. flamingos and Palaearctic species) and species potentially visiting the area for roosting/foraging, etc. (e.g. bustards). Although very little is known regarding the actual flight paths used by the birds frequenting the general area, Figures 4 and 5 indicate potential flight paths (closer to the proposed Tumas Project area) and documented bird mortalities caused by powerlines in Namibia. Known lapped-faced vulture nests are indicated by the red triangles. Vultures tracked in the NNNP usually show movement to the east and southeast (although not necessarily typical flight paths).

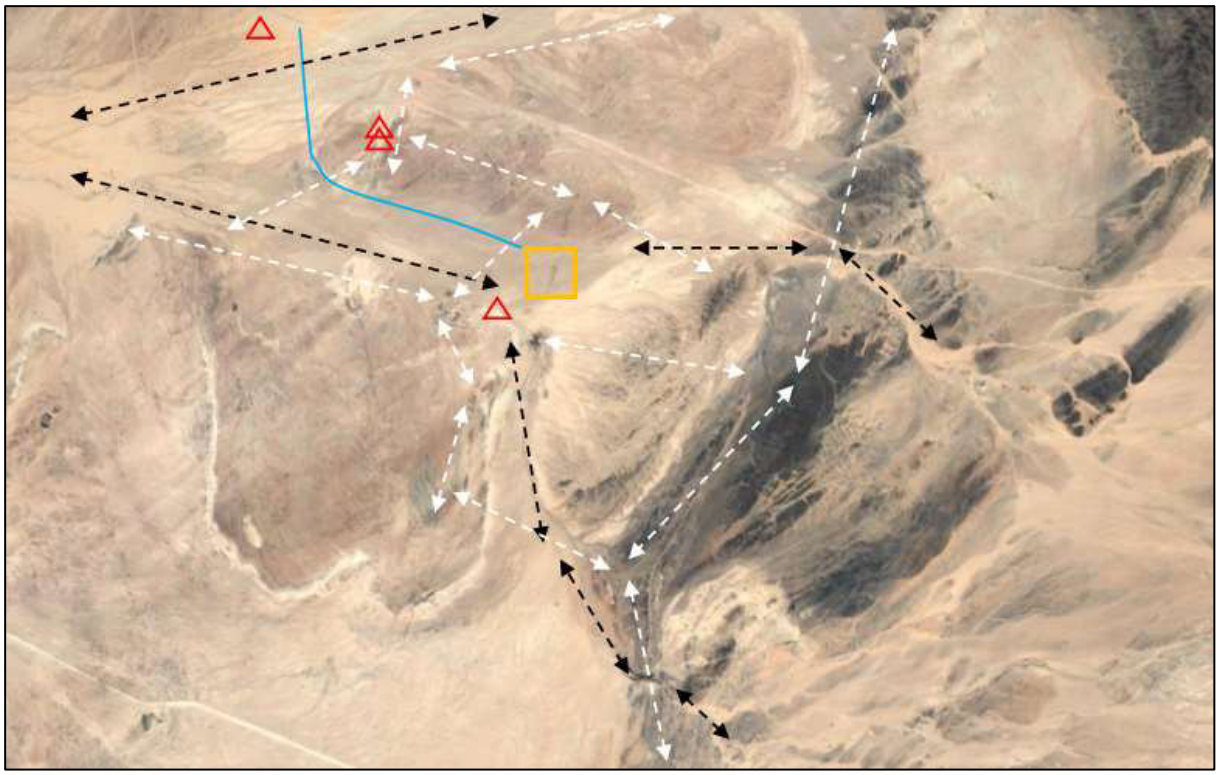

FIGURE 4: EXPECTED BIRD FLIGHT PATHS ALONG EPHEMERAL DRAINAGE LINES (BLACK DASHED ARROWS) AND BETWEEN MOUNTAINOUS AREAS (WHITE DASHED ARROWS) IN THE GENERAL AREA

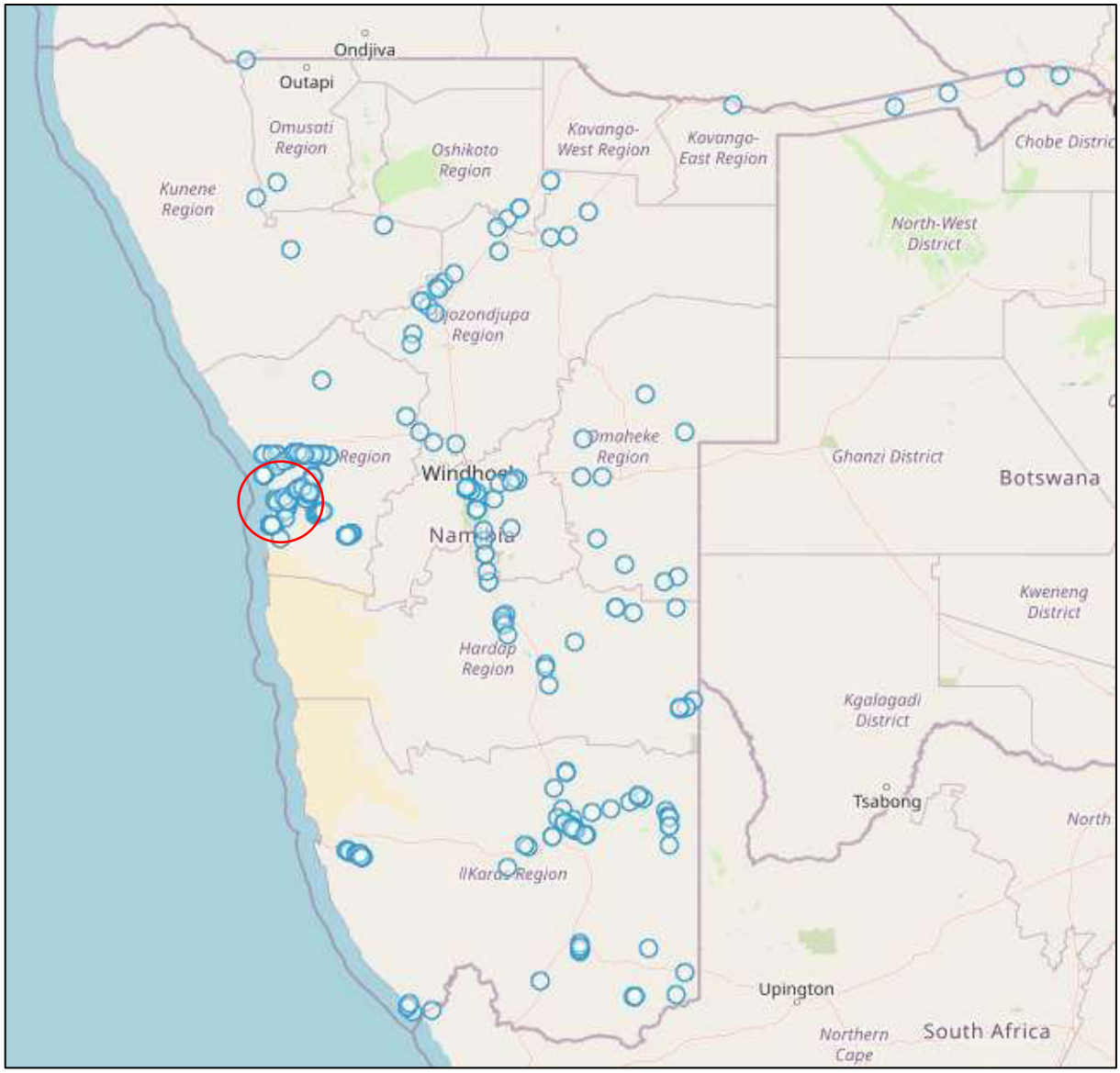

FIGURE5: KNOWN BIRD MORTALITIES CAUSED BY POWERLINES THROUGHOUT NAMIBIA (MARCH 2021) ARE INDICATED BY BLUE CIRCLES. THE GENERAL SWAKOPMUND/WALVIS BAY AREA – INDICATED BY A RED CIRCLE – IS A "HOTSPOT" BIRD COLLISION RISK AREA

Although Namibia's avifauna is comparatively sparse compared to the high rainfall equatorial areas elsewhere in Africa, approximately 658 species have already been recorded with a diverse and unique group of arid endemics. Fourteen species of birds are endemic or near endemic to Namibia with the majority of Namibian endemics occurring in the savannas (30%) of which ten species occur in a north-south belt of dry savannah in central Namibia.

Bird diversity is viewed as "average" in the general area with 141-170 species estimated and 1-3 species being endemic. 4-6 endemic species and a "low to average" ranking for southern African endemics and "high" ranking for southern African red data birds are expected from the general area. The Project area does not fall within an Important Birding Area (IBA). IBAs which are in the general vicinity include Walvis Bay (global IBA status), Sandwich Harbour (global IBA status), 30 km beach (national IBA status) and the

Mile 4 Saltworks (global IBA status) all towards the west along the coast. The Project area is potentially sensitive for certain bird species, especially when viewed in the broader context of these 'adjacent' IBAs.

With reference to section 4.2, the powerline route will intersect several drainage lines / washes and the Tumas River, with habitats that are sensitive in terms of the birdlife present. Two important habitats along the route between the Kuiseb substation and the service corridor to the Tumas Process Plant area are at 7.9 – 8.1 km and 23.3 and 27.2 km, which are both drainage lines.

The most important birds known/expected to occur in the general area are all the endemics, especially Rüppels korhaan, Gray's lark and Herero chat. Gray's lark is one of the species with the most restricted range in Namibia. Other important species are endangered birds (Ludwig's bustard, white-backed vulture, black harrier, martial eagle, tawny eagle, booted eagle, black stork), vulnerable (Lappet-faced vulture, secretary bird) and near threatened (Rüppell's parrot, Cape eagle owl,kori bustard, Verreaux's eagle and peregrine falcon) by Simmons *et al.* (2015) and the species classified as critically endangered (white-backed vulture), endangered (Ludwig's bustard, lappet-faced vulture, black harrier), vulnerable (martial eagle, tawny eagle, secretary bird) and near threatened (kori bustard).

A total of 13 species of birds were observed and/or confirmed (e.g. evidence thereof found) during fieldwork conducted between 31 August and 3 September 2020 while 8 species (INCA and TRS) and 17 species (i.e. Ongolo and Tumas) have been confirmed from the neighbouring areas by Cunningham (2010, 2013), respectively. Furthermore, only 12 bird species were observed at the Marenica Project site (Spitzkoppe area) of which 42% were Stark's lark, 11% Namaqua sandgrouse and 10% each for grey-backed sparrow-lark and lark-like bunting. The low number of birds observed during the fieldwork can be contributed to the general overall dryness of the vegetation together with the overall marginal environment. Birds are undoubtedly affected by localised rainfall events (and the short flowering period of most of the vegetation) with many more species expected to occur in the area under more favourable conditions. However, none of the bird species expected and/or observed/confirmed during the fieldwork is exclusively associated with the Project Area.

4.3.4 Reptiles

Short-snouted sand lizards (*Pedioplanis breviceps*) dominates in the washes. Fairly common plains species is the Namaqua chameleon (*Chamaeleo namaquensis*), and in the washes one also commonly finds wedge-snouted skinks and common barking geckos.

4.3.5 Amphibians

Amphibians are not viewed as important in the general Project area, however the ephemeral drainage lines (i.e. Tumas River) and rock pools might occasionally serve as temporary habitat for frogs. Three species have ranges that overlap with the study area. The endemic *Poyntonophrynus hoeschi* and *Phrynomantis annectens* are viewed as the most important although they are not exclusively associated with the Project area. Although none of the frog species have a special conservation status, the occurrence of amphibians in this hyper-arid area is considered to be of special significance. This is because living conditions for frogs

occur only at a few small pools, and these are usually temporary in nature. Management of amphibians will simultaneously benefit many other aquatic organisms, most of which have dormant phases tolerant of drought.

4.3.6 Mammals

Overall terrestrial diversity and endemism – all species – is classified as "low" and "average" respectively in the western central part of Namibia. The overall abundance and diversity of large carnivorous mammals is "average" (4 species) in the general area with brown hyena having the highest density of the larger species. At least 49 species of mammals are known and/or expected to occur in the general area of which 8 species are classified as endemic. The Namibian legislation classifies 5 species as vulnerable, 1 species as rare, 2 species as insufficiently known, 1 species as specially protected game, 5 species as protected game, 4 species as huntable game, 3 species as problem animals, 1 species as invasive alien, 1 species as a migrant and 1 species is not listed. At least 14 species of the mammalian fauna that occur or are expected to occur in general area are represented by rodents of which 3 species are endemic. This is followed by bats with 13 species of which 1 species is listed as endemic and rare and carnivores with 11 species of which 1 species (9.1%) is endemic and 5 species listed as vulnerable.

4.4 Visual / Sense of place, Land use, surrounding build environment and sensitive receptors

The proposed Tumas Project and associated powerline to the mine lies within the NNNP, with conservation of natural resources and tourism being two key land uses. One of the major attractions to tourists visiting the NNNP is the scenic beauty of the park and the associated sense of place. This is primarily based on the lack of human activity and natural features inside the park, coupled with a sense of remoteness and the stark beauty of the landscape. The landscape along the powerline route primarily consists of light-coloured gravel plains with all their remarkable contrasts of light-coloured pegmatites and dark-coloured dolerite.

Other land uses in the area include existing (small scale) Gypsum mining, historic and ongoing exploration activities and associated access tracks. There are no communities living in the immediate vicinity of the Tumas Project area. Other linear infrastructure include the powerlines, two existing water pipelines that supply water (one to the Langer Heinrich mine and one to the Husab Mine), that run alongside the C28 and various gravel roads and unnamed gravel tracks.

The openness, vastness and subtle variation in colour of the gravel plains, evoke a reasonably strong sense of place resulting in a moderate scenic quality rating. The scenic beauty of the project site area has however already been compromised to a certain extend by the presence of the above-mentioned infrastructure.

There are no communities living in the immediate vicinity of the proposed powerline.

The proposed powerline to the mine will be visible to the public using the C28, as is the existing powerline.

4.5 Archaeology

4.5.1 Section of the powerline route between the Kuiseb substation and the service corridor to the Tumas Process Plant

The area to be traversed by the powerline has been subject to two previous archaeological surveys linked to other projects. The powerline route was surveyed again for the Tumas Project. Two archaeological sites found during previous surveys / assessment (i.e. for the Langer Heinrich powerline) along the section of the powerline route between the Kuiseb substation and the service corridor have not been disturbed. The sites comprised an isolated artefact debris scatter and a section of the 19th century wagon route with well-preserved impressions of wagon tyres and the spoor of oxen on the desert surface. These two sites were avoided during the construction activities associated with the Langer Heinrich Powerline. No new archaeological sites were found along this section of the powerline.

4.5.2 Section of the powerline route along the service corridor to the Tumas Process Plant

A number of archaeological sites were found along the proposed service corridor route. These sites include two windbreaks, two storage cairns, two seed diggings and an outpost.

5. ENVIRONMENTAL IMPACT ASSESSMENT

The current (receiving) environment of the proposed powerline route was studied and the environmental aspects and potential environmental impacts associated with the powerline activities and facilities were identified as part of the EIA process. Potential environmental impacts were identified by Namisun and the team of environmental specialists in consultation with I&APs, regulatory authorities and RUN. The impacts are discussed under issue headings in Chapter 7 of the EIA Addendum Report.

The impacts are discussed under issue headings in the various sections and considered in a cumulative manner where relevant such that the impacts of the proposed powerline are seen in the context of the baseline conditions described in Section 4 (i.e. chapter 4 of the main EIA Addendum Report). Conceptual description of mitigation measures to address the identified impacts are discussed in this section and included in detail in the EMP that is attached in Appendix 18 of the main Tumas Project EIA Report.

The sections below describe the assessment findings and Section 5.8 provides a summary of the all the environmental aspects / potential impacts associated with the proposed powerline to the Tumas Project and the assessment ratings, in the unmitigated and mitigated scenarios.

5.1 Biodiversity

5.1.1 Potential loss or disturbance of biodiversity composition and habitat destruction

The proposed powerline passes through habitat that is considered either sensitive or very sensitive and this is primarily due to the presence of the lichen fields, marble ridges and washes / Tumas River. These washes / river provides denser vegetation. Particular efforts need to be made to restrict damage through

theses sensitive areas. The principal impacts that could cause habitat destruction / disturbance of biodiversity composition during the construction phase have been identified as the removal of vegetation and other structures which could reduce the habitat available to birds potentially reducing the ability to breed, forage and roost. Species likely to be affected include: Ludwig's Bustard, Kori Bustard, Ruppell's Korhaan, Gray's Lark, Lappet-faced Vulture, White-backed Vulture, Booted Eagle and Common Ostrich.

There is also the potential loss of topsoil and disruption of soil processes with subsequent impacts on the lichens, invertebrates, reptiles and small mammals this supports. Loss and damage of habitats can be greatly avoided and mitigated if sufficient care is taken and not placing poles in sensitive areas such as drainage lines and on rocky ridges.

The single areas of impact would be confined to the sites where the poles will be erected and the access tracks to these spots. Only the service road is continuous and can cause habitat fragmentation or slightly impact the connectedness of the landscape. To limit these impacts, the existing NamPower service road, within the existing 66 kV servitude, will be used as the road from where access points to the new poles will be made. Similarly, the new site access road to the mine will be used as the service road for constructing the section of the powerline between the C28 Road and the proposed Tumas substation.

5.1.2 Potential loss or disturbance of fauna (including avifauna) and flora

Loss of vegetation and associated biota could occur due to the infrastructure development of the proposed powerline. The impact of heavy machinery during construction, and especially the excavation of holes to plant pylons for the proposed powerline are also expected to be detrimental to reptiles, amphibians, mammals and birds, especially ground nesting species associated with the affected area/habitat. This would affect a relatively small area over a short/limited period of time. However, open holes could act as pitfall traps and should not be left open overnight.

The impact of the construction activities associated with the proposed aboveground powerline infrastructure is however not expected to be detrimental to reptiles, amphibians and mammals – i.e. it would not impede their movement, etc. However, some small mammal species are attracted to the substations and on-pole-mounted switching gear probably for foraging and heat and may cause problems at these structures. This could be mitigated by electrostatic animal and/or "squirrel guards" on the bushings. Other issues include damage caused by vehicles, littering, dust, general pollution, firewood collection and poaching by personnel involved in the construction of the powerline which can lead to a loss of plants, seeds and animals.

5.1.3 *Collision of birds with the overhead powerline and electrocution of birds*

In the unmanaged scenario, the following impacts could occur once the overhead powerline pole structures, all transformer structures (e.g. switchgears) and substation have been installed:

- Birds that are vulnerable to strikes with powerlines are discussed in section 4.
- Because of the nature of birds' vision, cables are often not seen and the bird usually strikes it at great speed, knocking it unconscious (to be killed by the subsequent fall or by predators on the ground) or killing it outright.
- The above mentioned impacts could take place on any parts of the powerline, but are more likely in sections where the line crosses flight corridors such as drainage lines or rivers.
- Collisions may also take place on stay wires (e.g. on poles at bend points), for instance when a bird is flushed from its position on the ground.
- Collisions may take place even during the construction phase, once the conductors have been strung but not energised, as well as during the operational phase.
- The clustering of existing infrastructure in the area, including other powerlines, the road network and communication masts, as well as other developments including mines, would increase the cumulative effect of any impacts associated with the proposed development.
- An electrocution occurs when a bird causes an electrical short circuit by physically making contact with live components, or by bridging the air gap between live components and/or live and earthed components.
- Electrocutions may take place when birds attempt to perch or nest on powerline poles, transformers and substation structures.
- The proposed steel monopole structure has large clearances, but if the poles are made of steel, and earthed, a large bird sitting on the insulator would be at risk to electrocution, especially if the structure is wet or damp from fog.
- Electrocutions of large birds would be possible should they try to perch on the insulators of the proposed monopole structures.
- Note that concrete structures could also pose an electrocution risk when wet.
- The electrocution risk is increased if birds are attracted to an open source of water nearby for bathing or drinking, and the birds become wet; this applies particularly to colonial species that are gregarious (e.g. vultures).

5.1.4 *Conceptual description of mitigation measures*

The proposed mitigation measures to address the above-mentioned impacts on biodiversity include:

- Use the existing NamPower service road, within the existing 66 kV servitude as the road from where access points to the new poles will be made. Use as few routes as possible as this would require fewer tracks and minimise rehabilitation efforts.

- Minimise disturbance in the sensitive lichen field areas.
- Avoid marble ridge for position of infrastructure.
- Look for protected flora species in areas ear-marked for position of infrastructure:
    - Avoid clearing protected flora species.
    - If some cannot be avoided, transplant (where possible) and monitor survival.
- Avoid sensitive habitats i.e. lapped-faced vulture nest sites.
- Install bird flight diverters (BFDs) (e.g. coils and/or flappers placed 50m apart on relevant sections of the powerline), as described in the EMP.

5.2 Soils and Land Capability

5.2.1 Loss of soil resources through physical disturbance and from pollution

In the unmitigated scenario, pollution of soils from various sources can result in a loss of soil functionality as an ecological driver because it can create a toxic environment for vegetation, vertebrates and invertebrates that rely on the soil. It could also negatively impact on the chemistry of the soils such that current growth conditions are impaired. Physical soil disturbance can also result in a loss of soil functionality as an ecological driver (unmitigated). In the case of erosion, the soils will be lost to the area of disturbance, and in the case of compaction the soils functionality will firstly be compromised through a lack of rooting ability and aeration, and secondly the compacted soils are likely to erode because with less inherent functionality there will be little chance for the establishment of vegetation and other matter that naturally protects the soils from erosion.

Soil crust lichens occur in certain sections along the proposed powerline route, which are vital to soil stabilisation and primary production. This biological soil crust is vulnerable to disturbance and there is little evidence of the lichen components achieving full recovery following human disturbances in semi-arid to arid environment, much less in hyperarid desert.

5.2.2 Conceptual description of mitigation measures

The proposed mitigation measures to address the above-mentioned impacts include:

- Pollution prevention through basic infrastructure design and through education and training of workers (permanent and temporary).
- The required steps to enable fast reaction to contain and remediate pollution incidents.
- Polluted soil and building rubble must be transported away from the site to an approved and appropriately classified waste disposal site.
- Specifications for post rehabilitation audit criteria to ascertain whether the remediation has been successful.
- Topsoil of holes should be preserved as a seedbank.

- Limit the disturbance of soils to what is absolutely necessary both in terms of site clearing and in terms of project development and movement of vehicles.

5.3 Archaeology

5.3.1 Disturbance or destruction to archaeological sites and their landscape setting

The proposed powerline route crosses an area of relatively high archaeological sensitivity. The main issue concerning the heritage resources is the disturbance or destruction of the archaeological sites and their landscape setting. The likelihood of such impacts is considered to be high in the unmitigated scenario. While the consequences of impacts to most of the individual archaeological sites are considered to be moderate or low in terms of standard archaeological Significance and Vulnerability ranking, the combined impact on the archaeological landscape will be high.

Without mitigation, implementation of the pipeline project will result in the very likely destruction or disturbance of archaeological sites associated with the powerline from Kuiseb substation. While none are in themselves sites of high archaeological significance, slight modification of the powerline route and associated surface works will mitigate the impact on the archaeological and landscape setting of these particular sites, in the case of six sites associated with the section of the powerline along the service corridor, some re-routing of these features would prevent direct impacts. The two sites along the section of the pipeline between the Kuiseb substation and the service corridor can be avoided during the design and construction phase (as was the case for the Langer Heinrich Powerline).

5.3.2 Conceptual description of mitigation measures

The proposed mitigation measures to address the above-mentioned impacts include:

- In the case of six archaeological sites associated with the section of the powerline along the proposed service corridor some re-routing of the powerline route (where required) would prevent direct impacts.
- The proposed new power supply and powerline route from Kuiseb to the C28 should be confined to the existing powerline corridor as far as possible.
- Design and construct the powerline infrastructure to avoid the two archaeological sites along the section of the powerline between the Kuiseb substation and the service corridor (i.e. isolated artefact debris scatter and a section of the 19t^{h} century wagon track).
- The project footprint should be kept as small as possible and confined to that described in this EIA;
- All workers (temporary and permanent) will be educated about the importance of preserving archaeological sites.
- Develop and implement a chance finds procedure.

5.4 Visual

5.4.1 Visual impact and sense of place

The visual landscape is determined by considering landscape character, sense of place, aesthetic value, sensitivity of the visual resource and sensitive views. In this regard, the area in which the section of the powerline route between the Kuiseb substation and the service corridor to the Tumas Process Plant will be situated has already been compromised by the existing (Langer Heinrich) powerline. The Langer Heinrich powerline continues towards the north-east of the C28 to the mine. Therefore, the area is considered to have a moderate to low scenic quality rating. However, the proposed new powerline will be visible to people using the C28 and specifically the section along the service corridor will add to the cumulative negative visual impact of the existing development along the C28. The visibility of the proposed power supply infrastructure is therefore predicted to be high.

When considering the potential change to the visual landscape the key issues are: visual exposure, visual intrusion, and sensitivity of receptors. Each of these issues is discussed below:

- Visual exposure is the extent to which the power supply infrastructure and activities will appear in the various views, taking the existing powerline into consideration. Visual exposure of the powerline (cumulatively) will be high because of its visibility from the C28. The section of the powerline, along the service corridor to the Tumas process plant area, will however be largely obscured by the rocky outcrops (i.e. granites).
- Visual intrusion is the extent to which the infrastructure and activities will contrast with the visual landscape and can/cannot be absorbed by the landscape. As a powerline already exists, the proposed new supply lines will not be completely out of context within the current visual environment and a moderate visual intrusion rating is therefore predicted. The new power supply infrastructure will have a negative effect on the visual quality of the landscape but is therefore considered partially compatible with the existing uses and will be partially absorbed into the landscape from viewing areas. The Tumas Project will involve further activities and infrastructure developed at the Tumas Project area. These are cumulatively assessed in the main EIA Report for the Tumas Project.
- Sensitivity of receptors relates to the way in which people will view the visual intrusion. In this regard, it is anticipated that tourist receptors will be sensitive but existing mine related receptors (including workers at Langer Heinrich mine and the proposed Tumas mine) may not be sensitive. The sensitivity of landscape receptors along the C28 is considered to be moderate as it is considered to be a landscape of moderately valued characteristics but reasonably tolerant of change.

5.4.2 Conceptual description of mitigation measures

The proposed mitigation measures to address the above-mentioned impacts include:

- The minimum amount of existing vegetation and topsoil should be removed from construction areas.
- The proposed pylons should run as close as possible (adjacent) to the existing powerline.
- On-going management of rehabilitated areas until they are properly established.

5.5 Surface and groundwater

5.5.1 Pollution of surface water and groundwater

Small areas may be contaminated because of improper waste management and accidental spills and leaks.

In the unmitigated scenario, surface water may collect contaminants which will cause pollution of water resources in washes. The dilution effect of flood water has not been studied in detail and whilst it will reduce the concentration of any contaminants it will not entirely remove any pollution.

Large quantities of pollutants would have to be released into the environment for the downstream surface water and groundwater to show contamination. However, the proposed powerline project (and associated activities) would not be associated with such large volumes.

5.5.2 Conceptual description of mitigation measures

The proposed mitigation measures to address the above-mentioned impacts include:

- Implement the Waste Management requirements as per the EMP. No littering.
- Ensure proper maintenance of all vehicles and equipment and conduct continuous maintenance and check-ups.
- Develop and implement an Emergency Preparedness and Reponses Plan / Procedure for all operational related spillages.
- Washing equipment are not allowed on site.
- 'Best' practice measures should be applied to minimise the potential discharge of pollutants onto open soil especially near draining lines / Tumas River.

5.6 Air quality and noise

5.6.1 Air pollution and noise pollution

The limited activities and associated air pollution sources resulting from the installation of the powerline will have no material impact on air quality. Furthermore, there are no noise and air quality sensitive receptors in close proximity to the proposed activities.

5.6.2 *Conceptual description of mitigation measures*

The proposed mitigation measures to address the above-mentioned impacts include:

- Dust suppression techniques should be in place during the construction and operational phases when required.
- All registered complaints (regarding noise) will be documented, investigated and efforts made to address the area of concern where possible.
- Ensure that vehicles and equipment are well-maintained and fitted with the correct noise abatement measures.
- No amplified music allowed on site.
- The contractor shall not use sound amplification equipment on site unless in emergency situations.
- Limit construction times to daylight hours.

5.7 Socio-economic

The proposed construction of the powerline to the Tumas Project would have positive socio-economic benefits, i.e. job creation and skills development and impacts to the local, regional and national economy. With reference to section 3.1, the total peak workforce on the powerline and switchyard during construction is expected to be 40 workers.

Potential negative impacts relate to poaching and littering (construction workers) as well as potential in-migration and housing issues in the coastal towns, however the latter issues are largely viewed as cumulative impacts with the greater Tumas Project.

Section 7 of the EIA Report for the proposed Tumas Project provides assessments for the above-mentioned impacts associated with the proposed Tumas Project. Similar management and mitigation measures as well as enhancement measures (for positive impacts) would be relevant to the proposed powerline project No further assessment is therefore required.

5.8 Summary of all environmental aspects / potential impacts and assessment ratings

Table 1 provides a summary of the environmental aspects / potential impacts associated with the proposed Tumas powerline Project and the assessment ratings, in the unmitigated and mitigated scenarios.

TABLE 1: SUMMARY OF POTENTIAL CUMULATIVE IMPACTS ASSOCIATED WITH THE PROPOSED TUMAS POWERLINE PROJECT

Section	Potential impact	Significance of the impact	
		Unmitigated	Mitigated
Biodiversity	Potential loss or disturbance of biodiversity composition and habitat destruction.	**M-H**	**L-M**
	Potential loss or disturbance of fauna (including avifauna) and flora.	**H**	**L-M**

Section	Potential impact	Significance of the impact	
		Unmitigated	Mitigated
	Collision of birds with the overhead powerline and electrocution of birds.	H	L-M
Soils and land capability	Loss of soil resources through physical disturbance and from pollution.	M-H	L
Archaeology	Disturbance or destruction to archaeological sites and their landscape setting.	H	M
Visual impacts	Visual impact (and sense of place) from sensitive views within the Namib Naukluft National Park.	M	M
Surface water and ground water	Pollution of surface water and groundwater.	M	L
Air quality and noise	Air pollution and noise pollution.	L	L

6. ENVIRONMENTAL IMPACT STATEMENT AND CONCLUSIONS

It is Namisun's opinion that the environmental aspects and potential impacts relating to the proposed powerline have been successfully identified and assessed as part of this EIA process. Relevant management and mitigation measures have been provided to avoid / minimise environmental impacts. These measures are included in the Powerline EMP and will become legally binding if MEFT provides a positive decision on the Application for the proposed Project.

Namisun believes that a thorough assessment of the potential impacts associated with the proposed construction and operation of the powerline has been achieved and will ensure MEFT to make an informed decision regarding the issuing of an ECC.

The way forward is as follows:

- Review and decision of the final report (including I&APs' comments) by MME and MEFT.

TUMAS PROJECT EIA ADDENDUM REPORT: PROPOSED NEW POWERLINE

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ACRONYMS AND ABBREVIATIONS

Below a list of acronyms and abbreviations used in this report.

Acronyms / Abbreviations	**Definition**
AMSL	Above Mean Sea Level
DEA	Directorate of Environmental Affairs
ECC	Environmental Clearance Certificate
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence
LOM	Life of Mine
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism
MET	Ministry of Environment and Tourism
MME	Ministry of Mines and Energy
ML	Mining Licence
NCE	Namibian Chamber of Environment
NPC	National Planning Commission
PFS	Pre-Feasibility Study
RMR	Reptile Mineral Resources and Exploration (Pty) Ltd
RUN	Reptile Uranium Namibia (Pty) Ltd

1 INTRODUCTION

This chapter describes the report purpose, briefly describes the background to the proposed Tumas Project and associated powerline, provides the project motivation, summarises legislative requirements and the EIA process, provides information on the EIA Team and explains the report structure.

1.1 PURPOSE AND STRUCTURE OF THIS (ADDENDUM) REPORT

Reptile Uranium Namibia (Pty) Ltd (RUN) plans to implement the proposed Tumas mining and processing Project (i.e. "Project").

Three separate Environmental Clearance Certificate (ECC) Applications have been submitted to the Ministry of Environment, Forestry and Tourism (MEFT) for the mining, processing and associated activities on the proposed ML area; the construction of a proposed new powerline; and the construction of a proposed new water pipeline to the mine.

This report focuses on the proposed powerline for the Tumas mining and processing Project (Tumas Project) and has been compiled as part of the Environmental Impact Assessment (EIA) process that is being undertaken. This report will be added as an addendum to the main EIA Report for the Proposed Tumas Project and provides the following information:

- Introduction to the proposed Tumas Project and the associated powerline.
- Relevant legislation and policies, applicable to the activities associated with the proposed powerline.
- The EIA approach and process methodology.
- The motivation for the proposed powerline (i.e. need and desirability).
- A description of the proposed powerline and associated activities and infrastructure.
- A description of the key characteristics of the receiving / baseline environment.
- Assessment of potential impacts of the proposed powerline, referring to amongst others, findings of specialist studies that were undertaken as part of the EIA process.
- Key management and mitigation measures and design requirements relating to the construction and operations of the proposed powerline, necessary to avoid or reduce potentially significant impacts.

Interested and/or Affected Parties (I&APs) are invited to comment on the (main) EIA Report for the proposed Tumas Project, including this addendum EIA Report (see Section 1.4.2 for further details). The (final) EIA report, including comments received from I&APs, will be submitted to the Ministry of Mines and Energy (MME) (Energy Directorate), as the Competent Authority, for their review and consideration. In terms of Section 32 of the Environmental Management Act, 2007 (No. 7 of 2007), MME is required to make recommendations on the acceptance or rejection of the report to the Ministry of Environment, Forestry and Tourism (MEFT): Directorate of Environmental Affairs (DEA), who will make the final decision on the application for an environmental clearance certificate (ECC) .

1.1.1 STRUCTURE OF THIS REPORT

This report has been prepared in compliance with Section 15(2) of the EIA Regulations 2012. The structure and content are outlined in Table 1 below.

TABLE 1: EIA REPORT STRUCTURE

SECTION	CONTENTS
Executive Summary	Provides a summary of the key findings of the EIA.
Chapter 1	**Introduction** This chapter describes the report purpose, briefly describes the background to the proposed Tumas Project and associated powerline, provides the project motivation, summarises legislative requirements and the EIA process, provides information on the EIA Team and explains the report structure.
Chapter 2	**Environmental legal framework** Provides an overview of relevant Namibian policies, summarises the Namibian administrative framework and describes the applicable Namibian legislation, international treaties, industry standards and guidelines applicable to the proposed powerline. It also provides a summary of the applicable listed activities under the EIA Regulations.
Chapter 3	**EIA Approach and public participation - summary** Summarises the approach and methodology for the EIA process, including the public participation process. Note: The EIA process (including the public participation process) is described in detail in the (main) Tumas Project EIA Report and will not be repeated in this (addendum) report. For the detailed EIA process, please refer to section 3 in the main EIA Report for the Tumas Project.
Chapter 4	**Project description** Outlines RUN's proposed powerline with respect to the construction, operations and decommissioning and closure phases. It provides the proposed route of the powerline and location of other relevant project components and describes the planned activities.
Chapter 5	**Alternatives** Describes the various project alternatives relating to the powerline / power supply that were considered and provides a comparison in terms of advantages and disadvantages that the proposed alternatives may have on the environment.
Chapter 6	**Description of the current / receiving environment** Describes the existing biophysical and social environment that could potentially be affected by the proposed powerline, using currently available information. The link to potential environmental and socio-economic impacts are also explained for the various receptors / aspects.
Chapter 7	**Impact assessment** Describes and assesses the significance of potential impacts associated with the implementation of the proposed powerline for the unmitigated and mitigated scenarios and summarize key management and mitigation measures and design requirements necessary to avoid or reduce potentially significant impacts.
Chapter 8	**Environmental impact statement and conclusions**
Chapter 9	**References** Provides the references used in compiling this report. Note:

SECTION	CONTENTS
	Various references were made in the respective specialist reports, which will not be repeated in this report. For the detailed lists of references, refer to the relevant appendices (Appendices 6 - 15) in the main EIA Report for the Tumas Project.
Appendices	This report is an addendum (i.e. Appendix) in the main EIA Report for the Tumas Project. All the appendices relating to Public Consultation, Specialist Reports, EMP, etc., have been included as Appendices to the main EIA Report.

1.2 INTRODUCTION TO THE PROPOSED TUMAS PROJECT AND ASSOCIATED POWERLINE

Reptile Uranium Namibia (Pty) Ltd (RUN) submitted an application to apply to the MME to convert, in part, its Exclusive Prospecting Licences (EPLs) 3496 and 3497 to a Mining Licence (ML). RUN is a wholly owned subsidiary of Reptile Mineral Resources and Exploration (Pty) Ltd (RMR) who manages and conducts the exploration activities on RUN's tenements. RUN and RMR are both wholly owned subsidiaries of Deep Yellow Ltd. (Deep Yellow), an Australian listed company.

The Tumas Project area is located in the Namib Naukluft National Park (NNNP) in the Erongo Region, approximately 40 km east from Walvis Bay and can be reached via the C28 or the C14 roads (refer to Figure 1 for the regional locality map of the proposed Tumas Project area).

Based on the exploration results and the Pre-Feasibility Study (PFS) that was completed in January 2021 for the Tumas Project, RUN applied for a ML to mine the uranium bearing ore through open-pit mining of the Tumas paleochannel and to process this material on site within the proposed ML area. Run plans to develop the Tumas mining, processing and associated activities on the proposed ML area; construct the proposed powerline; and construct the proposed water pipeline.

This EIA Addendum Report covers the proposed construction of a 132 kV overhead transmission powerline, to supply power to the Tumas mining and processing activities. The proposed powerline will be ~44 km long, following a route parallel to an existing 66 kV transmission line to the Langer Heinrich Mine. This line will commence at the Kuiseb substation, which is an existing 220/132 kV NamPower substation, and terminate at a 132/11 kV substation to be constructed at the Tumas Project site (refer to Figure 1 for the proposed route of the powerline).

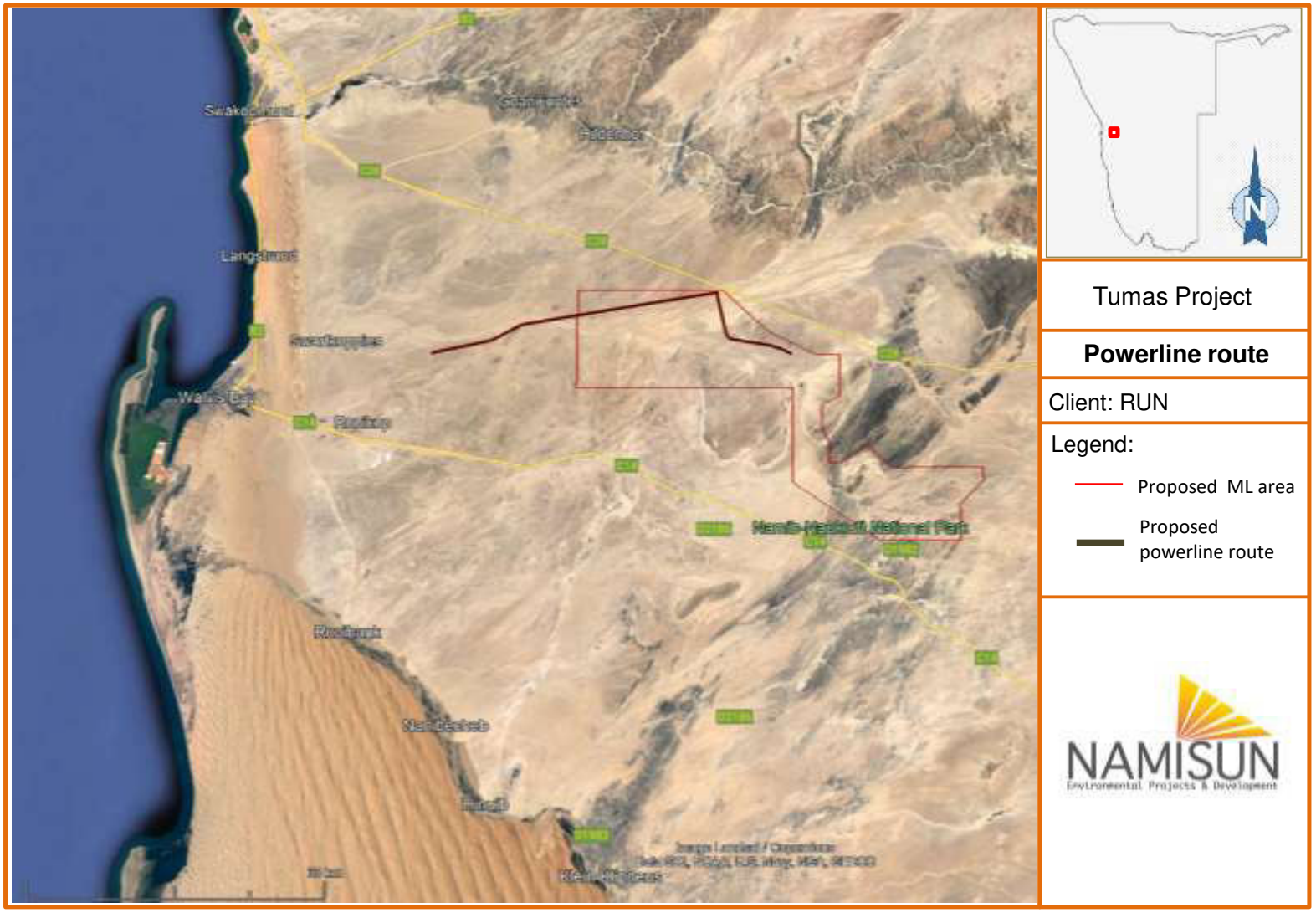


FIGURE 1: REGIONAL LOCALITY OF THE TUMAS PROJECT AREA AND THE PROPOSED POWERLINE ROUTE

1.3 PROJECT MOTIVATION (NEED AND DESIRABILITY) – POWERLINE

With reference to the main EIA Report, the motivation for Namibia to support the Tumas Project is economic and strategic in nature. The Project has the potential to benefit the country, society and surrounding communities both directly and indirectly. Direct economic benefits will be derived from wages, taxes and profits. Indirect economic benefits will be derived from the procurement of goods and services and the increased spending power of employees through the creation of new jobs at the mine.

The Tumas Project will need a total power of ± 15 MWe, with an average operational load of 12.7 MWe. Power will be supplied to the Tumas Project by a dedicated powerline to supply electricity in a hybrid arrangement with a solar photovoltaic (PV) array (refer to the main EIA Report for the Tumas Project for further details on the PV power plant.)

The proposed powerline forms part of the linear infrastructure for the Tumas Project. The closest, suitable, substation to the Tumas Project site is the Kuiseb Substation near Walvis Bay.

Without this proposed power supply and powerline the Tumas mining and processing activities cannot be executed, hence, impacting the overall financial feasibility of the Project.

1.4 INTRODUCTION TO THE EIA PROCESS

Prior to commencing with the development of the proposed mining, processing and associated activities, RUN must obtain a Mining Licence (ML) from MME. However, before a ML can be granted by MME, an EIA needs to be undertaken and an Environmental Clearance Certificate (ECC) issued by the Ministry of Environment, Forestry and Tourism (MEFT): Department of Environmental Affairs (DEA).

EIA applications are regulated by the MEFT in terms of the Environmental Management Act, 7 of 2007, which was gazetted on 27 December 2007 (Government Gazette No. 3966). The Environmental Impact Assessment Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) were promulgated in January 2012. The Environmental Management Act, 7 of 2007 and the associated EIA Regulations, 2012, provide for the control of certain activities that are listed in Government Notice (GN) No. 29. These activities cannot proceed until an ECC is obtained from the MEFT.

An Application for an ECC was submitted to the MME (Competent Authority for the mining, processing and associated activities on the proposed ML area) and MEFT (DEA). A separate Application for ECC for the construction of the powerline was submitted to the MME (Energy Directorate) (i.e. Competent Authority) and MEFT. However, a parallel EIA process is being conducted for the mining, processing and associated activities and the construction of the powerline (as well as the water supply pipeline – refer to Appendix 4 of Main EIA Report for the Tums Project).

Note: The detailed description of EIA process is covered in Sections 1.4 and 3.2 of the main EIA Report for the Tumas Project and will not be repeated in this report.

1.4.1 EIA TEAM – POWERLINE SPECIFIC

Namisun Environmental Projects and Development (Namisun) has been appointed by RUN as the independent Environmental Assessment Practitioner to undertake the EIA process.

Namisun is an independent environmental consultancy firm in Namibia. Werner Petrick, the EIA Project manager has ~twenty-three years of relevant experience in conducting/managing EIAs, compiling EMPs and implementing EMPs and Environmental Management Systems. Werner has a B. Eng (Civil) degree and a Master's degree in environmental management. He is certified as lead environmental practitioner and reviewer under the Environmental Assessment Professionals Association of Namibia (EAPAN).

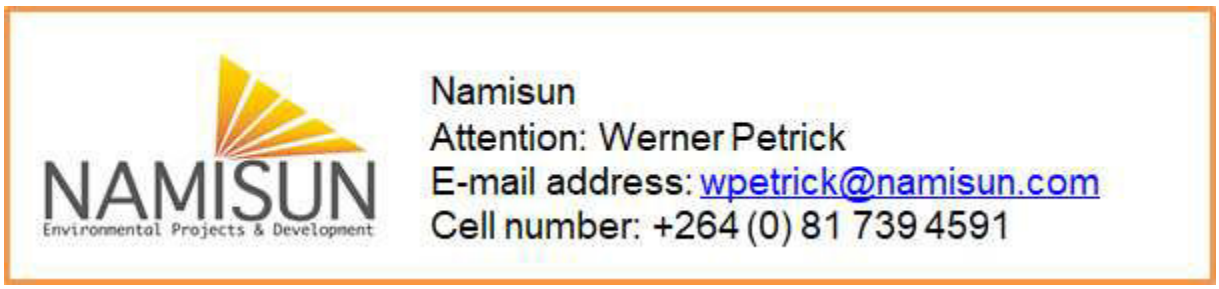
The relevant curriculum vitae documentation is attached in Appendix 1 of the Main EIA Report for the Tums Project. The Environmental Project team for the EIA process relating to the proposed powerline is outlined in the table below.

TABLE 2: EIA PROJECT TEAM AND ENVIRONMENTAL SPECIALISTS RELATING TO THE POWERLINE

Team	Name	Designation	Task and Roles	Company
Lead EIA Practitioner	Werner Petrick	EIA Project Manager	Management of the EIA process, public participation and compilation of EIA Report.	Namisun Environmental Projects and Development
	Peter Cunningham	Biodiversity Specialist Team	Vertebrate fauna assessment	Environment and Wildlife Consulting Namibia
	Antje Burke		Floral and vegetation assessment	Enviroscience
	John Kinahan	Archaeologist	Heritage resource assessment	J. Kinahan Archaeologist

1.4.2 OPPORTUNITY TO COMMENT

I&APs were invited to comment on this EIA (addendum) Report (with accompanying EMP), which was available for a review & comment period from **13 February to 17 March 2023**. Comments were sent to Namisun at the address, telephone number, or e-mail address shown below by **17 March 2023.**



1.5 KEY ASSUMPTIONS, UNCERTAINTIES AND LIMITATIONS

Assumptions, uncertainties and limitations have been discussed throughout the EIA report and in the various specialist studies. The more significant of these are included below. For more details refer to each of the Specialist Reports in Appendices 8, 9 and 14 of the main EIA Report:

1.5.1 FAUNA AND FLORA

The Fauna and flora study area has not received average rains since 2012 and was consequently very dry and denuded of vegetation at the time of field visits in 2021. This limited the assessment of plants and fauna diversity.

It cannot be assumed that all species potentially present in the area were accounted for during field work. This could mean that species – especially cryptic and lesser-known species – such as burrowing reptiles, rodents and bats, may be excluded. However, this is unlikely with rather more species indicated as potentially occurring in the general area due to the greater extent of the literature study conducted.

Species, especially reptiles, are constantly being revised taxonomically and although the latest nomenclature was followed, species may split or merge as subspecies or full species and/or have name changes as the project progresses.

No quantification for vertebrate fauna is available or possible to determine within the scope of the powerline project.

1.5.2 ARCHAEOLOGY

Archaeological assessment relies on the indicative value of surface finds recorded in the course of field survey. Field survey results are augmented wherever possible by inference from the results of surveys and excavations carried out in the course of previous work in the same general area as the proposed project, as well as other sources such as historical documentation. Based on these data, it is possible to predict the likely occurrence of further archaeological sites with some accuracy, and to present a general statement of the local archaeological site distribution and its sensitivity. However, since the assessment is limited to surface observations and existing survey data, hidden, or buried archaeological or palaeontological remains might be exposed as the project proceeds.

2. ENVIRONMENTAL LEGAL FRAMEWORK

This chapter provides an overview of relevant Namibian policies, summarises the Namibian administrative framework and describes the applicable Namibian legislation, international treaties, industry standards and guidelines applicable to the construction and operations of the proposed powerline. It also provides a summary of the applicable listed activities under the EIA Regulations.

All the laws and regulations for the overall Tumas Project have been covered in the main EIA report. This section specifically summarises the legislation applicable to the proposed powerline.

The Republic of Namibia has five tiers of law and a few guiding policies relevant to environmental assessment and protection, which include the Constitution of the Republic of Namibia, statutory law, common law, customary law and international law.

As the main source of legislation, the Constitution of the Republic of Namibia (1990) makes provision for the creation and enforcement of applicable legislation. In this context and in accordance with its constitution, Namibia has passed numerous laws intended to protect the natural environment and mitigate against adverse environmental impacts.

The management and regulation of energy activities falls within the jurisdiction of the MME (Directorate of Energy). The environmental regulations are guided and implemented by the DEA within the MEFT.

In the context of the proposed powerline project activities, there are several laws and policies currently applicable. Key legislation and policies are summarised below, and all relevant National Acts, Policies, Plans, as well as International Conventions and Protocols, are listed in section 2.1 below.

The EIA Policy (1995) is enforced through the Environmental Management Act, 7 of 2007 and the EIA Regulations of 6 January 2012 (EIA Regulations). In terms of this legal framework certain identified activities may not commence without an environmental clearance issued by MEFT (see section 1.4).

2.1 NATIONAL POLICIES AND PLANS - POWERLINE

Namibia's policies provide the framework to the applicable legislation. Whilst policies do not often carry the same legal recognition as official statutes, policies are used in providing support to legal interpretation. In the context of the powerline project, the following policies and plans are applicable:

- Namibia's Environmental Assessment Policy for Sustainable Development and Environmental Conservation (1994).
- Policy for the Conservation of Biotic Diversity and Habitat Protection (1994).
- The EIA Policy (1995).
- The National Climate Change Policy of Namibia (September 2010).
- White Paper on the Energy Policy, 1998.
- National Development Plan, 2017/2018 – 2021/2022, guided by Vision 2030.
- Namibia Vision 2030.

- National Biodiversity Strategy and Action Plan (NBSAP) 1 (2002) and 2 (2014).

2.2 SUMMARY OF APPLICABLE NAMIBIAN LEGISLATION AND STANDARDS - POWERLINE

In the context of the powerline project, the following legislation is applicable:

- National Monuments Act 28 of 1969.
- Soil Conservation Act 76 of 1969.
- Nature Conservation Ordinance 14 of 1975.
- The Constitution of the Republic of Namibia of 1990.
- Nature Conservation Amendment Act, No.5 of 1996, and the Nature Conservation Amendment Act, No. 3 of 2017.
- Road Traffic and Transport Act, 1999 (No. 22 of 1999).
- The Forestry Act 12 of 2001.
- Pollution Control and Waste Management Bill (3rd Draft September 2003).
- National Heritage Act 27 of 2004.
- Labour Act, 2007 (No. 11 of 2007).
- Electricity Act No.4 of 2007.
- Environmental Management, Act 7 of 2007.
- Regulations promulgated in terms of the Environmental Management, Act 7 of 2007.
- Draft Protected Areas and Wildlife Management Bill (2009).
- Public and Environmental Health Act No. 1 of 2015.
- Draft Bill Wildlife and Protected Areas Management (version March 2021)[1].

2.2.1 APPLICABLE LISTED ACTIVITIES

The EIA Regulations promulgated in terms of the Environmental Management Act, identify certain activities which could have a substantially detrimental effect on the environment. These listed activities require environmental clearance from MEFT prior to commencing. Table 3 provides a summary of the activities identified in the regulations that apply to the proposed powerline project.

TABLE 3: LISTED ACTIVITIES TRIGGERED BY THE PROPOSED PROJECT[2]

LISTED ACTIVITY	PROJECT COMPONENT
1. Energy generation, transmission and storage activities	
1. The construction of facilities for - (a) the generation of electricity; (b) the transmission and supply of electricity.	• On site power supply is considered as a possible option. • Overhead powerlines will be established for power submission from a substation.

[1] Not yet promulgated.
[2] Numbering as per the EIA Regulations.

2.3 STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA) AND MANAGEMENT PLAN (SEMP)

In 2009, the MME, after obtaining funding from the German Federal Institute for Geo-science and Natural Resources (BGR), appointed the Southern African Institute of Environmental Assessment (SAIEA) to conduct a Strategic Environmental Assessment (SEA) for the Uranium Rush in the Erongo Region (SAIEA, 2010).

The Strategic Environmental Management Plan (SEMP), which was the outcome of the SEA, is an over-arching framework and roadmap to address the cumulative impacts of existing and potential developments, within which individual projects have to be planned and implemented. Annual SEMP reports measure the performance around twelve Environmental Quality Objectives (EQOs) that show the extent to which uranium mining is impacting the central Namib. Each EQO articulates specific goals and targets that are monitored by a set of key indicators.

The EQOs, relevant to the proposed powerline for the Tumas Project, can be found in the Powerline EMP and are incorporated into the EMP.

3. EIA PROCESS AND METHODOLOGY

This chapter summarises the approach and methodology for the EIA process, including the public participation process.

3.1 OBJECTIVE OF THE EIA PROCESS

The overall objectives of the EIA process are to:

- Provide information on the proposed powerline project (i.e. activities and facilities / infrastructure).
- Describe the current environment in which the powerline will be routed.
- Provide a reasonable opportunity for I&APs to be involved in the EIA process (during both the Scoping and Impact Assessment phases).
- Identify feasible alternatives related to the proposed powerline project.
- Identify, in consultation with I&APs, the environmental (including social) aspects and potential negative and positive impacts relating to all project phases (i.e. construction and operations).
- Assess the potential impacts.
- Report on measures required to avoid impacts or mitigate such impacts to acceptable levels.

3.2 EIA PROCESS

As a 'full EIA process' is required for the proposed Tumas Project, a Screening (and Project initiation) phase; Scoping Phase and Impact Assessment phase were conducted, including a series of steps to ensure compliance with the EIA Regulations 2012 as set out in GN No. 30 and the objectives listed above.

The process involves an open, participatory approach to ensure that all impacts are identified and that relevant information on environmental and social impacts is provided as part of the decision making process. A flowchart illustrating the regulated EIA application (i.e. scoping and assessment phases) process is presented in Figure 2.

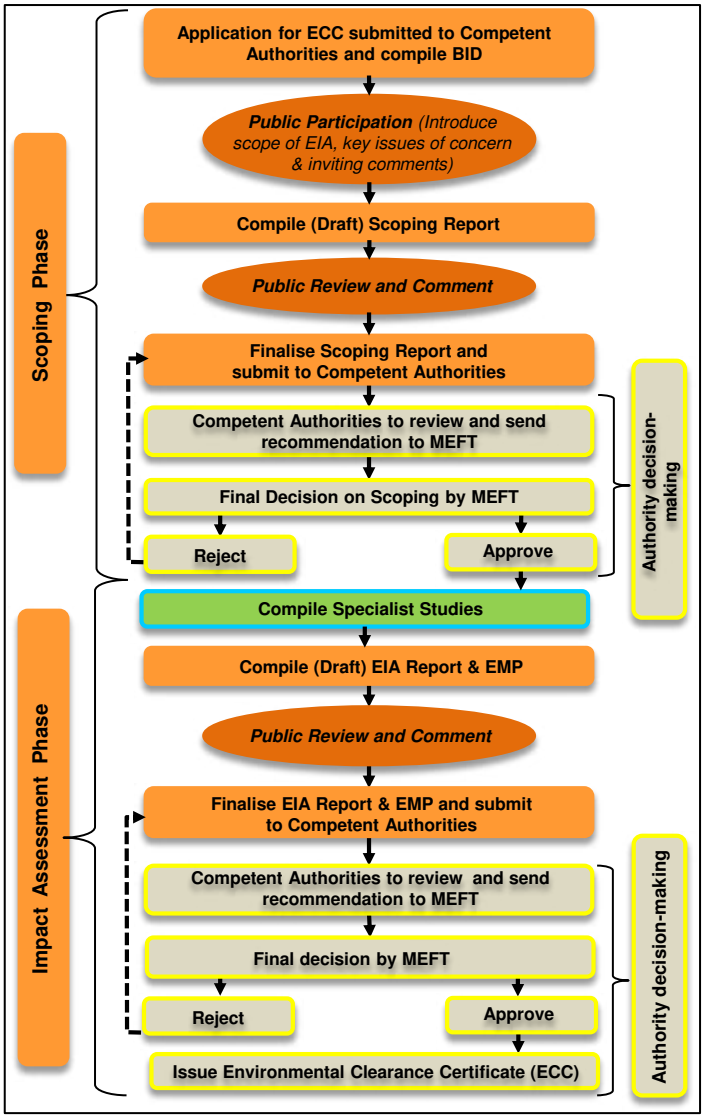


FIGURE 2: EIA PROCESS FOR THE PROPOSED TUMAS PROJECT (INCLUDING THE POWERLINE)

At the end of the scoping phase of the EIA, Namisun prepared a Final Scoping Report in compliance with Section 8 of the EIA Regulations (2012) and was informed by all comments received during the public participation process, which involved the follow key steps:

- I&AP identification (throughout the process).
- I&AP Registration and comments period and distribution of Background Information Document (BID).
- E-mail notifications and site notices.
- Newspaper Advertisements and Site Notices.
- Focus Group Meetings and telephone discussions.
- Review of draft Scoping Report by I&APs.

The main purpose of the Scoping Report was to:

- Provide a description of the proposed Tumas Project and associated infrastructure and activities, including the proposed powerline.
- Provide baseline information and identify environmental and socio-economic aspects and potential impacts associated with all Project activities and facilities.
- Describe Project alternatives to be assessed during the impacts assessment phase.
- Generate terms of reference for the EIA that will enable the meaningful assessment of all relevant environmental and socio-economic aspects, including the powerline.

The Scoping Report was accepted by MEFT in December 2021.

Note: The detailed information relevant to the EIA process; the project initiation and screening; the scoping phase including the public participation process are covered in the EIA Report for the Tumas Project (refer to chapter 3 in the EIA Report for the Tumas Project). The EIA process and relevant steps are applicable to the proposed powerline and will therefore not be repeated in this report.

3.3 IMPACT ASSESSMENT PHASE AND EIA ADDENDUM REPORT

The proposed terms of reference for further specialist investigations associated with the proposed powerline were developed as a result of the Scoping Phase and presented in the Scoping Report. The Environmental Team (including the various Specialists – see Table 2) took the terms of reference and the baseline work conducted during the Screening and Scoping phases into consideration to assess the various impacts that the powerline project may have on the physical, social and economic environment.

The following specialist studies were undertaken as part of the impact assessment phase:

- Biodiversity:
    - Vegetation Assessment (Enviroscience, 2022) (Appendix 8 of the main Tumas Project EIA Report).
    - Terrestrial Fauna Assessment (Environment and Wildlife Consulting Namibia, 2022) (Appendix 9 of the main Tumas Project EIA Report).
- Archaeology Assessment (J. Kinahan Archaeologist, 2022) (Appendix 14 of the main Tumas Project EIA Report).

3.3.1 IMPACT ASSESSMENT METHODOLOGY

The criteria used to assess the impacts and the method of determining the significance of the impacts relating to the proposed Project is outlined in section 7.1. This method complies with the EIA Regulations: EMA, 2007 (Government Gazette No. 4878) and was used by all specialists to conduct their impact assessments.

3.3.2 COMPILATION OF THE EIA (ADDENDUM) REPORT AND EMP FOR THE POWERLINE

This EIA (Addendum) Report relates to the proposed powerline and has been prepared in compliance with Section 15(2) of the EIA Regulations 2012. The specialist studies and other relevant information / assessments have been integrated into this report.

This EIA (Addendum) Report describes all activities and infrastructure associated with the proposed powerline. Potential impacts associated with the powerline activities and infrastructure are also assessed in this report.

The EMP for the proposed overhead powerline to the Tumas Project is attached as Appendix 16 of the main Tumas Project EIA Report).

4. DESCRIPTION OF THE PROPOSED POWERLINE

This chapter outlines RUN's plan with respect to the construction, operations and decommissioning phases of the proposed powerline. It provides the proposed layout of the powerline and describes the planned activities for the construction phase.

4.1 GENERAL PROJECT INFORMATION

4.1.1 DETAILS OF THE APPLICANT

Company name:	Reptile Uranium Namibia (Pty) Ltd
Contact (responsible) person:	Mrs. Katrin Kärner
Tel:	+264 64 415 200
E-mail:	katrin.kaerner@reptile.com.na

With reference to section 1.2, RUN is a wholly owned subsidiary of RMR and Deep Yellow Limited (Deep Yellow), a publicly listed Australian company. RMR is the Manager of Mining Tenements located in the NNNP, including RUN's EPL 3496 and EPL 3497. The RUN and RMR office is located in Swakopmund, Deep Yellow's office is in Perth, Western Australia.

Information presented in the sections below was (largely) obtained from Ausenco (2021).

4.1.2 TECHNICAL DETAILS OF THE PROPOSED POWERLINE

The powerline will be a 132 kV, ~44 km overhead transmission line, that will commence at Kuiseb substation, which is an existing 220/132 kV NamPower substation, and terminate at a 132/11 kV substation to be constructed at the Tumas Project site. The proposed route of the powerline is largely parallel to an existing 66 kV powerline to the Langer Heinrich Mine. At the C28 Road, the powerline will follow a south-easterly alignment, adjacent to the proposed new site access road / service corridor, to the 132/11 kV substation at the proposed Tumas process plant area. This last section of the powerline would be ~12 km long (refer to Figure 1). A new water pipeline will also be constructed for the Tumas Project. The last section of the pipeline will follow the same service corridor as for the powerline and will likely be constructed underground (refer to the Addendum Report for the proposed new water pipeline in Appendix 4 of the Main Tumas Project EIA Report).

The proposed powerline will be designed and constructed to the established national codes and international standards, including the Namibian Electricity Safety Code (2009) and the Namibian Transmission Grid Code (2007).

The Right of Way (ROW) for the powerline will be required to provide sufficient separation to surrounding structures.

The aluminium conductors for the 132 kV powerline will be strung on self-supporting steel monopole structures with a height of approximately 24 meters. Typical steel monopole structures for 132 kV transmission is shown in Figure 3.

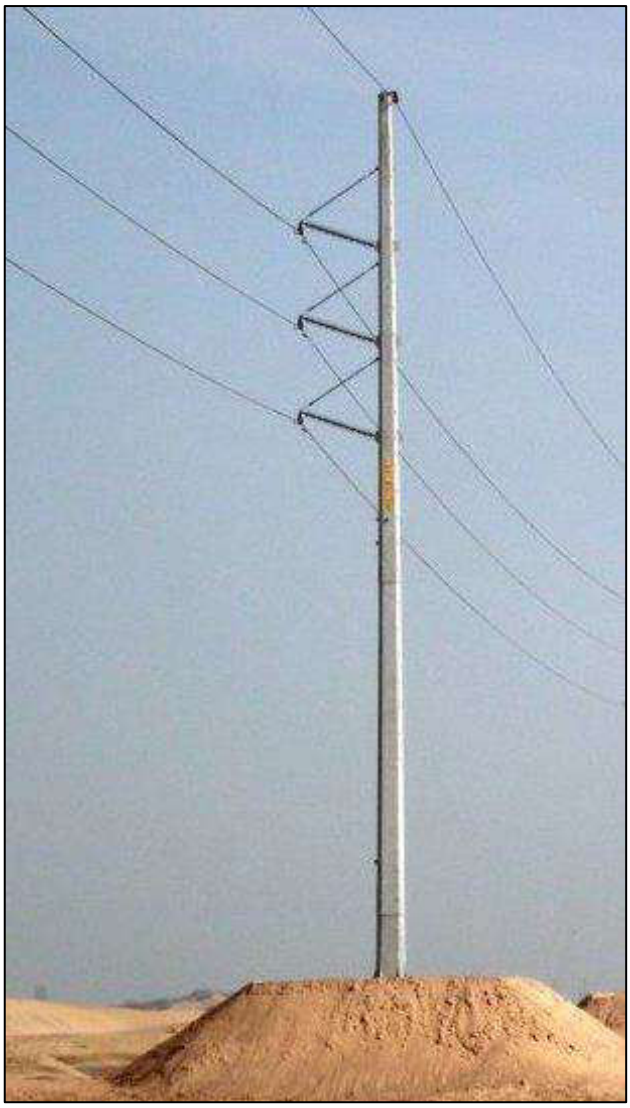


FIGURE 3: EXAMPLE OF A TYPICAL 132 KV STEEL MONO-POLE POWERLINE, SHOWING THREE CONDUCTORS AND AN EARTH WIRE ON TOP

The existing Kuiseb substation will be upgraded to accommodate the connection of the new 132 kV powerline to the Tumas Project. The switchgear at Kuiseb substation is Gas Insulated Switchgear (GIS) with Sulfur Hexafluouride (SF6) gas. It is expected that the upgrade to the Kuiseb substation will not require an expansion of the boundaries to the existing substation.

The proposed substation at the Tumas Project site will consist of air-insulated outdoor switchgear with a 132/11 kV step-down oil-filled transformer. The oil will be a mineral based oil and the transformer will be installed within a concrete bunded area sufficiently sized to contain all of the oil volume within the transformer. The expected oil volume of the transformer is up to 15,000 litres. The expected area for the substation is 50 metres by 75 metres.

4.2 CONSTRUCTION PHASE

4.2.1 SITE PREPARATION AND SITE FACILITIES FOR CONSTRUCTION

There is no need for any large-scale land clearance for the installation of power poles. Only the small areas where the digging of the mono-pole foundations will take place will be affected by localized and largely non-intrusive construction activities, including the preparation of each site.

A small temporary construction assembly area will be required adjacent to the powerline, at specific locations, and switchyard. Equipment and materials will be stored in the laydown facilities at the Tumas Project site and transported by regular trucks to the point of installation.

All components for the powerline (steel, conductors, and insulators, etc.) will be transported on the C28 road to site on low-bed trailers and then transported along the existing service road of the 66 kV powerline.

4.2.2 GENERAL CONSTRUCTION ACTIVITIES

The poles will arrive pre-assembled. Mobile cranes will be used to place the poles in their foundation holes. Concrete will be mixed and poured onsite for the foundations of the monopoles and for the foundation and platform of the substation and for the plinths. Subsequently all concrete constituents (crushed stone, cement, water and sand) will have to be transported to site.

Construction activities to take place during the establishment of the powerline include activities, such as minor soil stripping and overburden/waste removal (only where the poles will be erected), excavations/drilling for the poles and rolling out of the conductor. Some construction activities will also be required within the current footprint of the substation.

4.2.3 VEHICLES AND EQUIPMENT AND CONSTRUCTION TRANSPORT

Vehicles used for the construction phase will include 7 tonne trucks for moving materials, and 4x4 vehicles for construction workers. A drilling vehicle and a crane will be used for the erection of the pylons. Concrete may be required on some poles depending on final geotechnical investigation. A concrete truck will be used to construct equipment foundations in the switchyard. Daily traffic will vary depending on the stages of construction and there will be a minimum of 4 vehicles a day.

All construction traffic will use the C28, the existing maintenance tracks for the current NamPower line, and the proposed Tumas Project access road / service corridor. Construction workers will largely be housed in the dedicated Tumas Project construction camp and will travel to and from the camp to the work site daily (refer to Chapter 4 of the main Tumas Project EIA Report for further details of the proposed construction camp.

It is proposed that the NamPower service road, within the existing 66 kV servitude, will be used as the road from where access points to the new poles will be made. The laydown areas will also be within this servitude. Similarly, the new site access road to the Tumas Project and will be used as the service road for constructing the section of the powerline between the C28 Road and the proposed Tumas substation.

The transport of the materials from laydown areas to the point of installation will be by regular flat-bed trucks.

4.2.4 EMPLOYMENT AND HOUSING

With reference to section 4.1.3.3, most of the direct labour required for the powerline and switchyard will be housed in the Tumas Project construction camp. Construction personnel will be transported between the camp and worksite using busses. Skilled labour for the construction and commissioning phases will travel directly from local towns.

The number of workers in the construction work crew is expected to be as follows:

- Truck Driver
- Light Vehicle Driver x 2
- Concrete Truck Driver
- Drilling Operator
- Crane Operator
- Rigger
- Engineer x 1
- Supervisors x 2
- Labourers x 6

Additional workers will be at the site Project laydown areas to manage receipt and issue of materials to the work crews, as well as for safety and administrative activities. Total peak workforce on the powerline and switchyard is expected to be around 40 workers.

4.2.5 WATER SUPPLY FOR CONSTRUCTION ACTIVITIES

Drinking water and water for cement mixing will be transported from Walvis Bay or Swakopmund. No significant quantities are required and mobile water bowsers will be used.

4.2.6 POWER SUPPLY FOR CONSTRUCTION ACTIVITIES

Where required, electricity during the construction activities will be provided by small / portable and mobile generators.

4.2.7 FUEL SUPPLY AND STORAGE

Diesel is the main consumable and will be required for the vehicles and equipment. Vehicles will be fuelled at the Tumas Project site and no fuel will be stored onsite.

4.2.8 WASTE MANAGEMENT

Some construction and non-hazardous waste (steel and wire offcuts, scrap metal, empty containers, electrical cable rolls, plastics and packaging and building rubble), hazardous waste (e.g.: oil and fuel, contaminated materials and soil) as well as domestic waste (such as plastic bags, tins, bottles, paper, and packaging waste) will be generated. Waste will be separated at source, stored in a manner so that there can be no discharge of contamination to the environment and either recycled or reused where possible. All waste will be transported off site to appropriate recycling or disposal facilities (Swakopmund for general waste and Walvis Bay for hazardous waste).

Drip trays will be placed under all stationery vehicles and equipment. Any oil spills will be scooped into bags and taken to a permitted hazardous waste disposal site (i.e. Walvis Bay).

Portable toilets with associated septic tanks will be used. The septic tanks will be emptied on a regular basis and the effluent disposed of at the Swakopmund Municipal sewage treatment works.

4.2.9 CONSTRUCTION SCHEDULE

On current estimates, subject to authorisation, the construction phase is expected to take ~12 months to complete.

4.3 POWERLINE OPERATIONAL PHASE

The main activities will include routine inspections and maintenance as required.

4.4 DECOMMISSIONING

At a conceptual level, decommissioning can be considered a reverse of the construction phase with the demolition and removal of most of the infrastructure (i.e. the new powerline) very similar to the construction phase. However, in the context of the powerline, it might be considered to maintain the powerline to provide any possible future network development and power distribution in the area.

5. ALTERNATIVES

This chapter provides a summary of various project alternatives to be considered as part of the EIA.

5.1 POWERLINE ROUTE OPTIONS

With reference to section 1.2, the proposed route of the line is parallel to an existing 66 kV transmission line to the Langer Heinrich Mine. This line will commence at the Kuiseb substation, which is an existing 220/132 kV NamPower substation, and terminate at a 132/11kV substation to be constructed at the Tumas site. The transmission line will follow the existing 66 kV Kuiseb-Langer Heinrich Mine transmission line corridor and should therefore have minimal cumulative impacts on avifauna. It was considered appropriate to follow the route of the existing powerline as this is an established linear infrastructure corridor.

5.2 POWER SUPPLY OPTIONS

The various power supply options to the mine that were considered by RUN are described in section 5.3 of the Main EIA Report for the Tums Project.

5.3 THE "NO PROJECT" OPTION

As mentioned in section 1.3, the motivation for the powerline component of the Project is to supply electricity to the Tumas Project by a dedicated powerline in a hybrid arrangement with a solar PV power plant. Without this power supply, the Tumas mining and processing activities cannot be executed, hence, impacting the overall financial feasibility of the Project.

If the proposed powerline is not constructed and implemented, the baseline environment (see Section 6) will stay unchanged with no (potential) negative impacts on the environment, as further assessed in Section 7.

6. DESCRIPTION OF THE CURRENT / RECEIVING ENVIRONMENT

An understanding of the environmental context within which the proposed powerline is located is important to better understand any sensitivities and to help assess potential impacts. This chapter therefore describes the existing biophysical and social environment that could potentially be affected by the proposed powerline, using currently available information.

The information presented in the sections below was derived from, amongst others, the following sources of information:

- EIA Scoping Report for the Tumas Mine and Associated Infrastructure (Namisun, 2021).
- Visual observations during various site visits by the Environmental Team.
- Input from the environmental specialists, as described in section 1.4.1. The following specialist studies have reference:
    - Vertebrate fauna assessment (Environment and Wildlife Consulting Namibia (EWCN), 2022) – see Appendix 9 of the Main EIA Report for the Tums Project.
    - Floral and vegetation assessment (Enviroscience, 2022) – see Appendix 8 of the Main EIA Report for the Tums Project.
    - Heritage resource assessment (J. Kinahan Archaeologist, 2022) – see Appendix 14 of the Main EIA Report for the Tums Project.
- Other relevant EIAs in the region associated with the Langer Heinrich (Uranium) Mine and Bannerman's Etango Project and their associated linear infrastructure:
    - EIA Report for the proposed upgrading of the power supply at Langer Heinrich Mine (Metago, 2012).
    - Environmental Scoping Assessment for Bannerman Resources 132 kV overhead transmission line and substation with metering station (Urban Green, 2021).
- Strategic Environmental Assessment. (SEA) for the Central Namib Uranium Rush (Southern African Institute for Environmental Assessment (SAIEA), 2010).
- Atlas of Namibia.
- Google Earth.

6.1 EXISTING INFRASTRUCTURE

The proposed powerline will connect to the existing Kuiseb substation, located ~15 km north-east of Walvis Bay. The Kuiseb Substation is fairly congested in terms of existing transmission lines extending to and from this substation. The existing 66 kV transmission line to the Langer Heinrich mine, amongst others, extends from the substation, in an east-north-easterly direction.

The following lines extend in a northerly direction from the Kuiseb substation, towards the Walmund substation:

- Two 220 kV transmission lines
- Three 66 kV transmission lines (one which is planned to be dismantled).

Furthermore, the following lines are being proposed from the Kuiseb substation, towards the Walmund substation. (Not all these lines will be connected to the Walmund substation):

- A 132 kV powerline for the proposed Etango Project.
- Two further 132 kV lines from Kuiseb Substation to the new Sekelduin Substation.

Once the above three lines have been implemented, a total of seven transmission lines will therefore run in parallel from Kuiseb Substation towards the Walmund Substation.

To ensure future planning and possible crossing of other (existing and planned transmission lines from the Kuiseb substation) RUN will continue to liaise and consult with NamPower.

6.2 CLIMATE

A detailed description of the region al climate in the area is provided in section 6 of the EIA Report for the Tumas Project. The following provides a summary of the key / relevant climatic aspects of the region:

- The average rainfall and fog related precipitation is low but evaporation is high. The proposed powerline route is therefore planned in an area that is water stressed.
- There is potential for flood events, i.e. 'flash floods' in the various washes and the Tumas River, which the powerline will cross.

6.3 TOPOGRAPHY, SOILS AND HYDROLOGY

6.3.1 TOPOGRAPHY

The section of the powerline between the Kuiseb substation and the C28 Road is located predominantly on a flat plain. The powerline route gas been slightly diverted to the north to avoid a dolerite ridge (stretching in a south-west to north-easterly direction for ±2 km), located approximately 7.8 km from the Kuiseb substation (see Figure 1). The route also crosses a few minor drainage lines.

The section of the powerline, along the service corridor to the proposed Tumas process plant area, will pass near a marble ridge area (see section 6.4.2 for further details) ending at the proposed new Tumas Substation. Between the C28 and the proposed Tumas process plant and substation area lies rocky outcrops (i.e. granites) providing higher elevation (refer to Figure 4).

FIGURE 4: TOPOGRAPHY

Notes:

- The view from the C28 Road is obstructed (both lines AB and CD.
- The insert provides a cross section (i.e. topography) of line CD. Points B and D approximate locations of the proposed powerline near the proposed Tumas process plant and sub-station.

6.3.2 SOILS

6.3.2.1 Soil forms

The dominant soil groups include the following major soil characteristics and dominant soil forms:

- Group 1 - In the transition zone, there are a variation of shallow colluvial derived materials that are founded on calcrete and/or hard rock, with areas of moderately deep sandy loams and sandy clay loams that returned moderately high clay contents and a degree of structure (weak crumby to weak blocky). These characteristics are not generally found in the alluvial materials or the in-situ derived rocky desert areas. These materials are generally moderately well sorted, and do not exhibit the distinctive stratification of the river sediments.
- Group 2 - the ephemeral channels are dominated by moderately shallow (<500mm) to deep (800mm) soils with a calcium rich chemistry and variable texture. This group of soils are important to the overall ecological and biodiversity of the area, with both the terrestrial and the aquatic ecology being influenced by the presence of the evaporite at or close to surface. These zones are defined water ways and areas that contribute to the success of the unique systems that control the highly sensitive desert environment.
- Group 3 - a group of generally shallow to very shallow poorly structured fine to very fine grained sandy loams and silty loams that are associated with the in-situ materials outside of the river or stream environments. These soils are generally founded on a hard rock base or lithocutanic horizon, and returned poor vegetative cover for the most part.
- Group 4 - In contrast, the stratified alluvial sediments associated with the river channels and flood plain of the Tumas River are generally deep, and vary in texture from fine grained silt and sand to pebble and cobble size materials with occasional boulder inclusions. (Metago, 2012).

The soils have a high permeability and low clay and carbon content making them susceptible to erosion and compaction. The soils are associated with an evaporite layer either at surface as a crust and/or as a calcrete layer deeper in the soil profile. These layers may be significant to the ecological balance of the desert environment because they are believed to retain water content in the soil horizons beneath the crust and above the calcrete layer (Metago, 2012).

The biological soil crust of the Central Namib have the effect of binding the surface of the soil that is not easily penetrated by wind. It has the effect of reducing erosion of fine-grained soil material and thereby minimising dust generation during strong winds. (Urban Green, 2021).

Well planned management actions during the construction phase will be required in order to minimise the disturbance to soils and to ensure the successful rehabilitation of the proposed powerline route following its removal, if no longer required.

6.3.3 HYDROLOGY

The Swakop, Khan and Kuiseb Rivers are the major ephemeral rivers in the region. Occasionally storm water entering the rivers (i.e. Swakop River and Kuiseb River) in the upland areas, which reaches the sea. The Tumas River, in which the proposed Tumas mine will be situated, drains towards the west and does not drain in either one of the above-mentioned Rivers.

With reference to section 6.2.1, the proposed powerline route does not cross any of the major rivers in the area, however it does cross several shallow washes / drainage lines and the Tumas River.

The smaller drainage lines are poorly defined and are often only conspicuous by the perennial plants they support. These plants grow slowly under desert conditions and cannot be easily replaced when destroyed.

Rainfall and associated surface water flows are sporadic, however surface water flow plays a significant role in the desert ecosystem. The groundwater and surface (when it occurs) water within these shallow washes / drainage lines and the Tumas River are therefore very important from an ecosystem point of view.

The proposed construction activities must be conducted in a manner to prevent pollution of water resources and ensures that existing drainage patterns are not disrupted.

There is no reliance on localised water resources by humans in or adjacent to the Project area. Surface water is however important for ecosystem functionality within and adjacent to the Project area.

6.4 BIODIVERSITY

In the broadest sense, biodiversity provides value for ecosystem functionality, aesthetic, spiritual, cultural, and recreational reasons.

The ecosystem under consideration is within a largely undisturbed area within the NNNP. There are however several existing powerlines and associated service roads (refer to section 6.1) in the area.

The development of the proposed powerline will cumulatively impact the land surface which may impact one or more of the following biodiversity parameters:

- Biodiversity composition in terms of species and their abundance. Key species are particularly important because a limited change in their numbers may have a disproportionate effect on the ecosystem's stability or resilience. Rare, threatened or endangered species are important because impacts on them have wider relevance than the proposed project area alone.
- Biodiversity structure which is the organisation of biological units in time and space.
- Key biodiversity processes in terms of functional linkages of parts or components of an ecosystem.

6.4.1 HABITATS

In broad terms, habitats are places where organisms live. Habitat requirements include characteristics such as availability of required nutrients, energy, water, the absence of toxins, shelter, geophysical

conditions, and suitable micro-climatic conditions. In total 5 habitat types were defined by Metago (2012) along the powerline route based on their physical and ecological characteristics.

The powerline route crosses sandy and gravel plains supporting very sparse grasslands interrupted by mostly shallow washes and the Tumas River, which is a large and sheltered drainage line with a high proportion of Salsola shrubs. Diversity on the plains is very low compared to most of study area, and it becomes lower as you move westwards. There is very little apparent vegetation outside of the washes.

The powerline will run through lichen field areas (see Figure 5) which have been categorised as highly sensitive areas. These are described in more detail in section 6.4.2.

6.4.2 FLORA

6.4.2.1 Flora within the powerline route between the Kuiseb substation and the service corridor to the Tumas Process Plant

Within the western washes the perennial vegetation is dominated by *Zygophyllum stapfii, Salsola* sp. and, further west, *Arthraerua leubnitziae*. *Adenolobus pechuelii* occurs occasionally and herbs and grasses are present in low densities, including endemics such as *Hermbstaedtia spathulifolia, Monechma cleomoides, Heliotropium oliveranum, Blepharis grossa, Cleome foliosa v. foliosa, Sporobolus nebulosus, Aizoanthemum rehmannii* and *Jamesbrittenia barbata.* The plains incised by these washes are largely devoid of vegetation except for scattered *Z. stapffii, A. leubnitziae* and (occasionally) very sparse annual grasses, mostly *Stipagrostis uniplumis* and *S. hirtigluma.*

The lichen field carries a mixture of crustose and foliose lichens, which is typical of the more diverse sections of the field, and a distinct biological crust is present. (Metago, 2012).

Figure 5 and Figure 6 describe flora along the powerline route between the Kuiseb Substation and the C28 road.

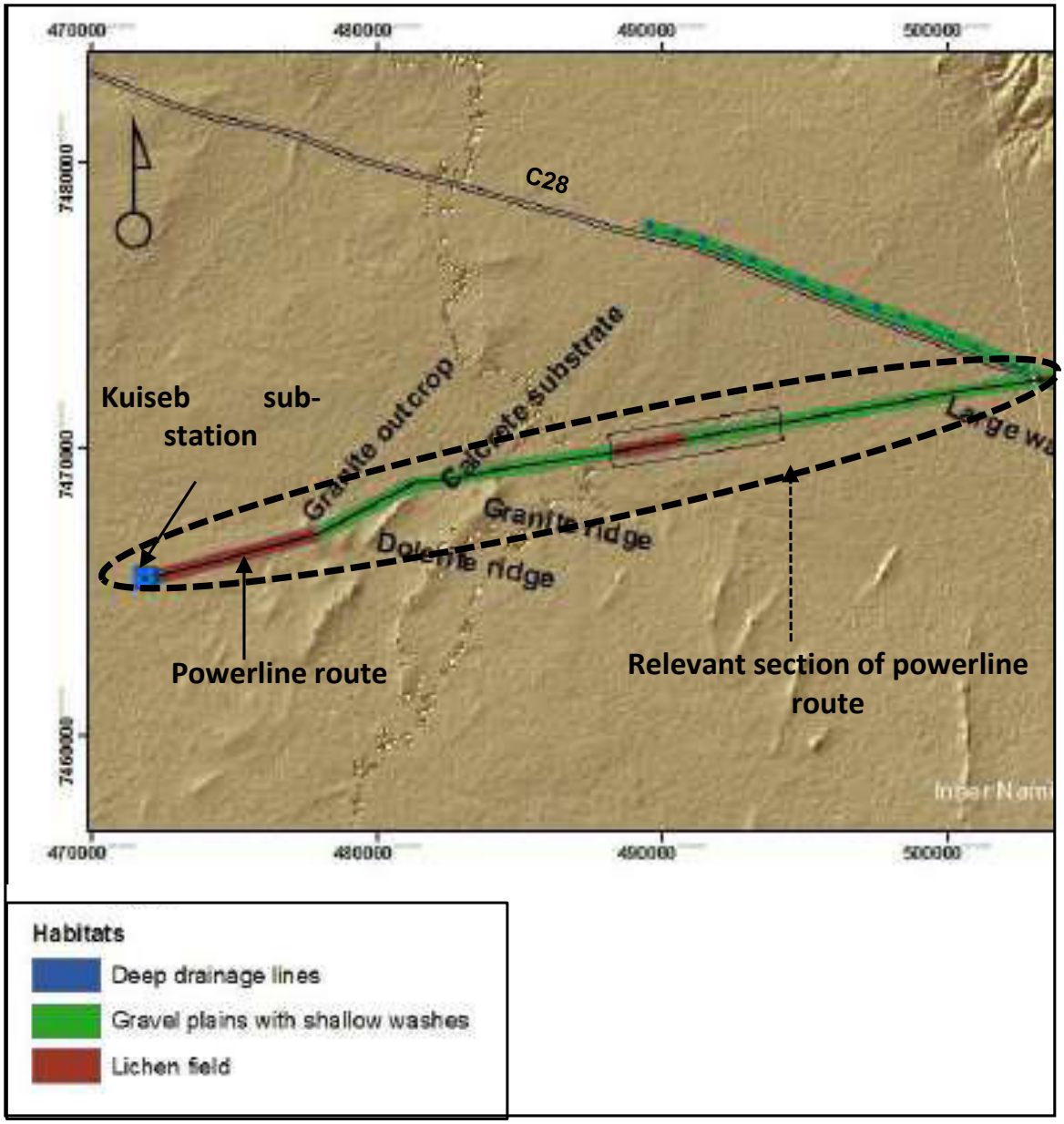


FIGURE 5: LICHEN FIELDS ALONG THE POWERLINE FROM KUISEB SUBSTATION TO THE C28 (EXTRACT FROM AFRICAN WILDERNESS RESTORATION FOR METAGO 2012)

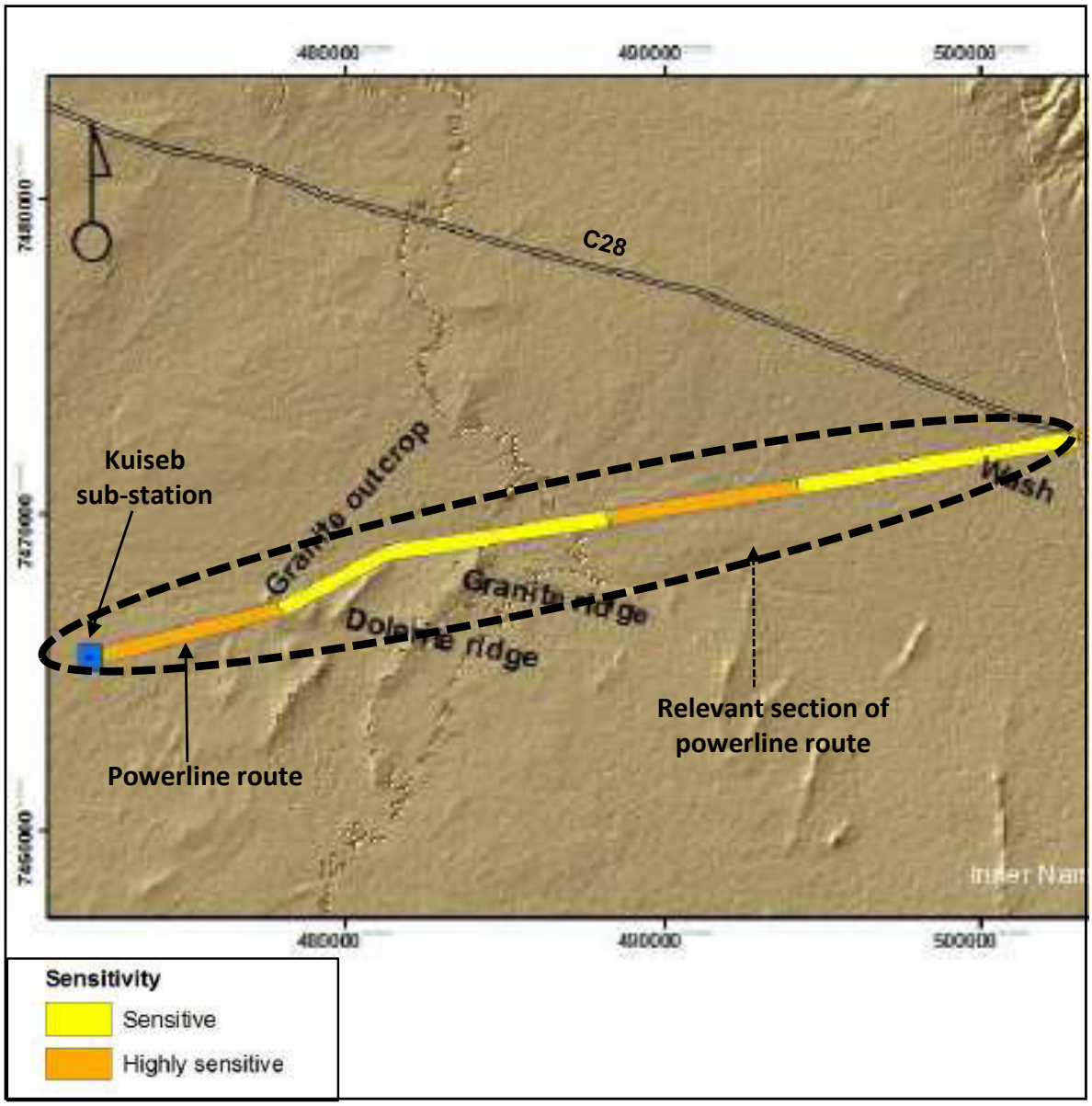


FIGURE 6: SENSITIVE AREAS ALONG THE POWERLINE FROM KUISEB SUBSTATION TO THE C28 (EXTRACT FROM AFRICAN WILDERNESS RESTORATION FOR METAGO 2012)

6.4.2.2 Flora within the service corridor

The service corridor (which includes the powerline extension from the C28 to the site) will run through virgin terrain and pass near a sensitive area – a marble ridge and will run through Lichen fields that are categorised as highly sensitive areas.

This part of the central Namib supports one of the world's most species-rich lichen fields. Many of these species are endemic to the Namib Desert and all possible life forms of lichens are present (crustose, foliose, fruticose, saxicolous, vagrants). Lichens mostly grow on gravel and rocks but cover changes in

density across the landscape. Habitats receiving more moisture such as slight rises, ridges and hills usually show a denser cover of lichens than the more level areas.

Although not comparable to the famous lichen fields to the north-west of the Tumas Project area, a dense cover of lichens can be observed in the western reaches of the Project area - particularly on quartz gravel. The lichen cover is not continuous, but mainly limited to gravel patches. These lichens are also an indicator for biological soil crusts which are also environmentally sensitive areas. These crusts are formed by a mix of cyanobacteria, algae, fungi and mosses and are important soil stabiliser and fertilisers in deserts.

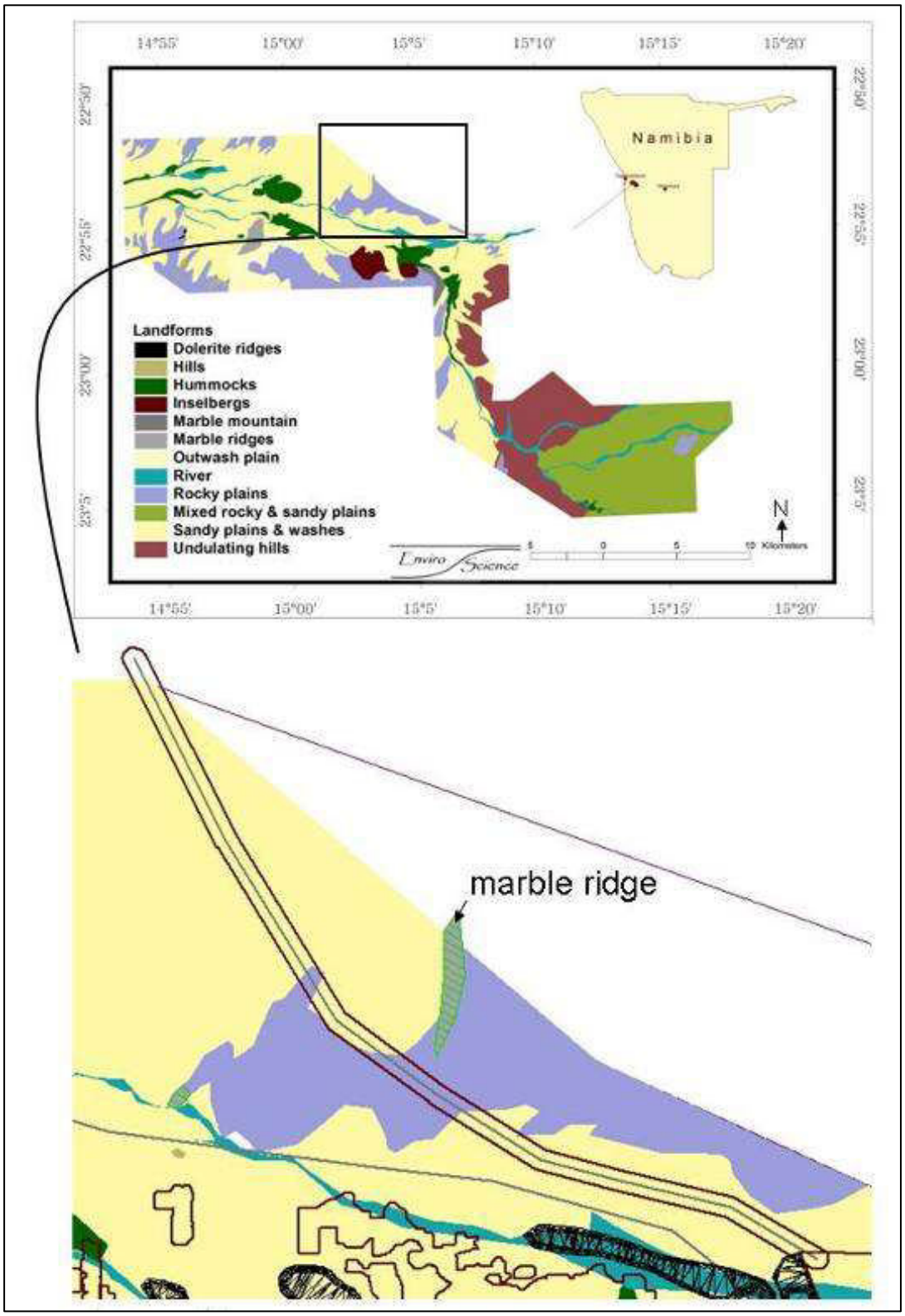


FIGURE 7: THE PLANNED SERVICE CORRIDOR IN RELATION TO LANDFORMS AND SENSITIVE AREAS IN THE PROJECT AREA.

6.4.3 AVIFAUNA

Avifauna is expected to be potentially affected by the overhead powerline. Species potentially affected by the proposed overhead powerline, once operational and at greatest risk would be those larger species flying at pylon height (e.g. bustards, eagles, vultures); nocturnal travellers (e.g. flamingos and Palaearctic species) and species potentially visiting the area for roosting/foraging, etc. (e.g. bustards).

Although very little is known regarding the actual flight paths used by the birds frequenting the general area, Figures 5 and 6 indicate potential flight paths (closer to the proposed Tumas Project area) and documented bird mortalities caused by powerlines in Namibia. Known lapped-faced vulture nests are indicated by the red triangles. Vultures tracked in the NNNP usually show movement to the east and southeast (although not necessarily typical flight paths).

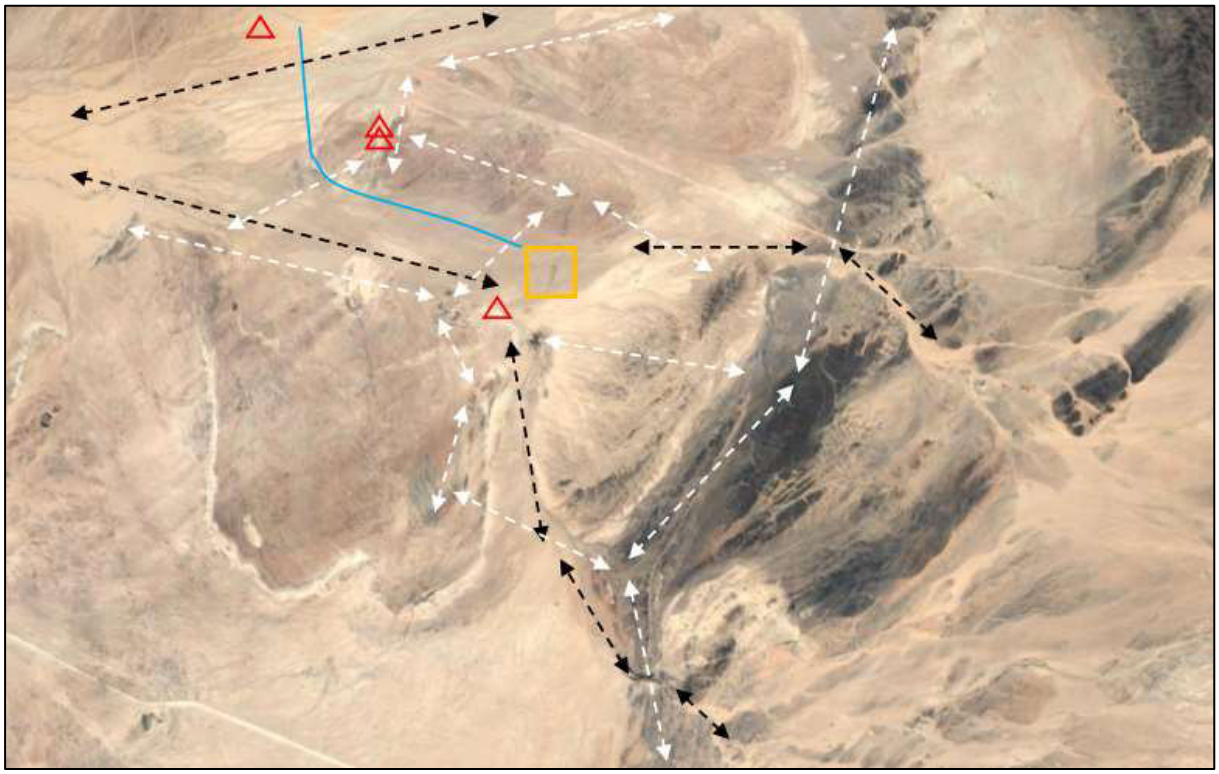


FIGURE 8: EXPECTED BIRD FLIGHT PATHS ALONG EPHEMERAL DRAINAGE LINES (BLACK DASHED ARROWS) AND BETWEEN MOUNTAINOUS AREAS (WHITE DASHED ARROWS) IN THE GENERAL AREA (EWCN, 2022)

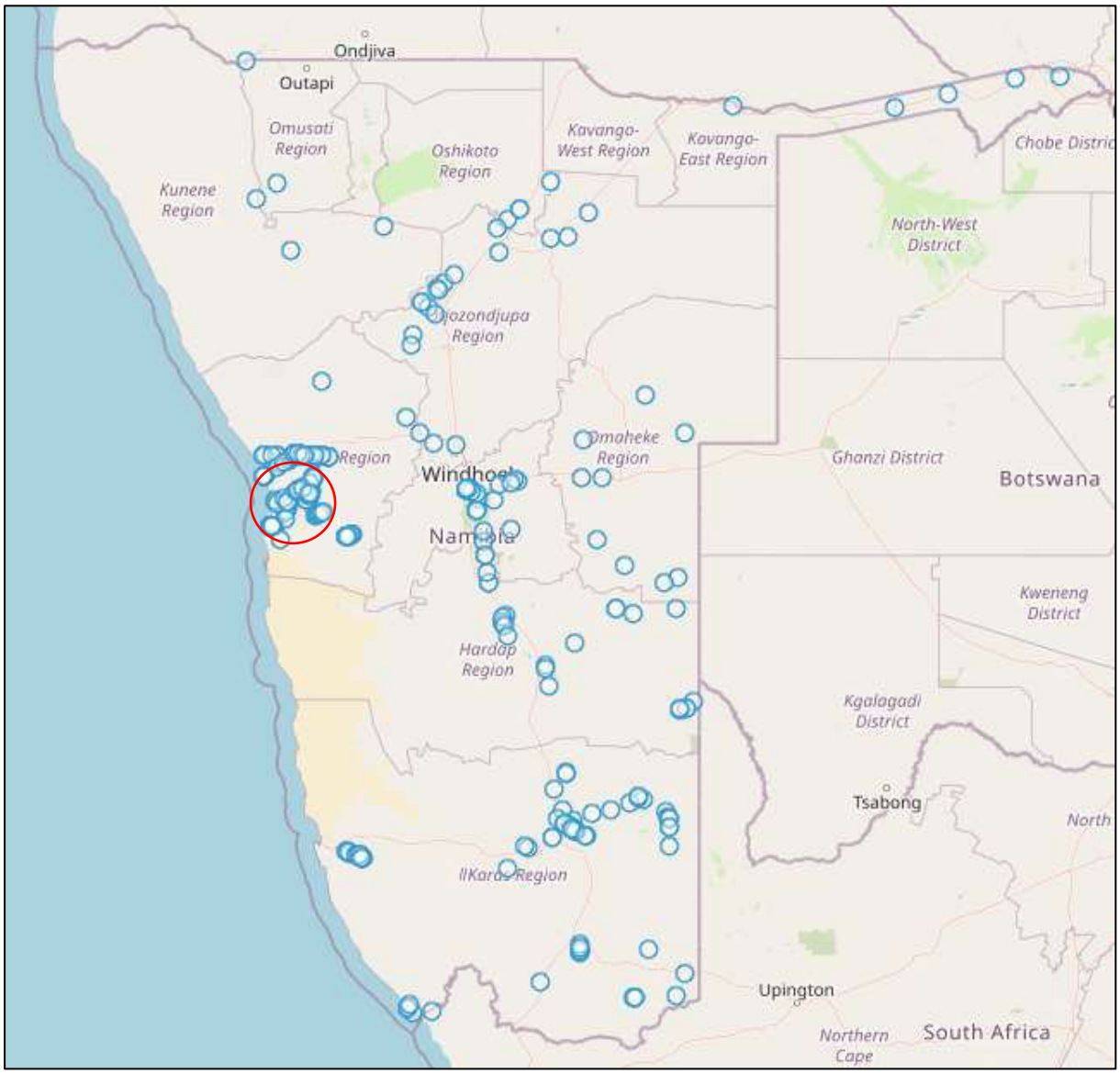


FIGURE 9: KNOWN BIRD MORTALITIES CAUSED BY POWERLINES THROUGHOUT NAMIBIA (MARCH 2021) ARE INDICATED BY BLUE CIRCLES. THE GENERAL SWAKOPMUND/WALVIS BAY AREA – INDICATED BY A RED CIRCLE – IS A "HOTSPOT" BIRD COLLISION RISK AREA (EWCN, 2022)

Although Namibia's avifauna is comparatively sparse compared to the high rainfall equatorial areas elsewhere in Africa, approximately 658 species have already been recorded with a diverse and unique group of arid endemics. Fourteen species of birds are endemic or near endemic to Namibia with the majority of Namibian endemics occurring in the savannas (30%) of which ten species occur in a north-south belt of dry savannah in central Namibia.

Bird diversity is viewed as "average" in the general area with 141-170 species estimated and 1-3 species being endemic. 4-6 endemic species and a "low to average" ranking for southern African endemics and "high" ranking for southern African red data birds are expected from the general area. The Project area does not fall within an Important Birding Area (IBA). IBAs which are in the general vicinity include Walvis

Bay (global IBA status), Sandwich Harbour (global IBA status), 30 km beach (national IBA status) and the Mile 4 Saltworks (global IBA status) all towards the west along the coast. The Project area is potentially sensitive for certain bird species, especially when viewed in the broader context of these 'adjacent' IBAs.

With reference to section 6.3.3, the powerline route will intersect several drainage lines / washes and the Tumas River, with habitats that are sensitive in terms of the birdlife present. Two important habitats along the route between the Kuiseb substation and the service corridor to the proposed Tumas Process Plant area are at 7.9 – 8.1 km and 23.3 and 27.2 km, which are both drainage lines.

At least 130 species of terrestrial ["breeding residents"] birds occur and/or could occur in the general area at any time. All the migrant and aquatic species have been excluded here. Seven of the 14 Namibian endemics are expected to occur in the general area (50% of all Namibian endemic species or 5.4% of all the species expected to occur in the area). However, Rüppell's parrot is viewed as near endemic. Furthermore, 7 species are endangered (Ludwig's bustard, white-backed vulture, black harrier, martial eagle, tawny eagle, booted eagle, black stork), 2 species are vulnerable (Lappet-faced vulture, secretary bird) and 5 species near threatened (Rüppell's parrot, Cape eagle owl, kori bustard, Verreaux's eagle and peregrine falcon). Other important species known to occur in the general area are maccoa duck and great white pelican. Both these species are however aquatic species and not expected to occur in along the powerline route, but could pass over on their way to the coast.

Forty three species have a southern African conservation rating with 9 species classified as endemic (20.1% of southern African endemics or 7% of all the birds expected) and 34 species classified as near endemic (79.1% of southern African endemics or 26.2% of all the birds expected). The IUCN (2021) lists 1 species as critically endangered (white-backed vulture), 3 species as endangered (Ludwig's bustard, lappet-faced vulture, black harrier), 3 species as vulnerable (martial eagle, tawny eagle, secretary bird) and 1 species as near threatened (kori bustard).

The most important birds known/expected to occur in the general area are all the endemics, especially Rüppels korhaan, Gray's lark and Herero chat. Gray's lark is one of the species with the most restricted range in Namibia. Other important species are endangered birds (Ludwig's bustard, white-backed vulture, black harrier, martial eagle, tawny eagle, booted eagle, black stork), vulnerable (Lappet-faced vulture, secretarybird) and near threatened (Rüppell's parrot, Cape eagle owl,kori bustard, Verreaux's eagle and peregrine falcon) by Simmons *et al.* (2015) and the species classified as critically endangered (white-backed vulture), endangered (Ludwig's bustard, lappet-faced vulture, black harrier), vulnerable (martial eagle, tawny eagle, secretary bird) and near threatened (kori bustard).

A total of 13 species of birds were observed and/or confirmed (e.g. evidence thereof found) during fieldwork conducted between 31 August and 3 September 2020 while 8 species (INCA and TRS) and 17 species (i.e. Ongolo and Tumas) have been confirmed from the neighbouring areas by Cunningham (2010, 2013), respectively. Furthermore, only 12 bird species were observed at the Marenica Project

site (Spitzkoppe area) of which 42% were Stark's lark, 11% Namaqua sandgrouse and 10% each for grey-backed sparrow-lark and lark-like bunting.

The low number of birds observed during the fieldwork can be contributed to the general overall dryness of the vegetation together with the overall marginal environment. Birds are undoubtedly affected by localised rainfall events (and the short flowering period of most of the vegetation) with many more species expected to occur in the area under more favourable conditions.

However, none of the bird species expected and/or observed/confirmed during the fieldwork is exclusively associated with the Project Area

6.4.4 REPTILES

Short-snouted sand lizards (*Pedioplanis breviceps*) dominates in the washes. Fairly common plains species is the Namaqua chameleon (*Chamaeleo namaquensis*), and in the washes one also commonly finds wedge-snouted skinks and common barking geckos (Metago, 2012).

6.4.5 AMPHIBIANS

Amphibians are not viewed as important in the general project area, however the ephemeral drainage lines (i.e. Tumas River) and rock pools might occasionally serve as temporary habitat for frogs. Three species have ranges that overlap with the study area. The endemic *Poyntonophrynus hoeschi* and *Phrynomantis annectens* are viewed as the most important although they are not exclusively associated with the project area (EWCN, 2022).

Although none of the frog species have a special conservation status, the occurrence of amphibians in this hyper-arid area is considered to be of special significance. This is because living conditions for frogs occur only at a few small pools, and these are usually temporary in nature. Management of amphibians will simultaneously benefit many other aquatic organisms, most of which have dormant phases tolerant of drought (Metago, 2012).

6.4.6 MAMMALS

Overall terrestrial diversity and endemism – all species – is classified as "low" and "average" respectively in the western central part of Namibia. The overall abundance and diversity of large carnivorous mammals is "average" (4 species) in the general area with brown hyena having the highest density of the larger species. At least 49 species of mammals are known and/or expected to occur in the general area of which 8 species are classified as endemic. The Namibian legislation classifies 5 species as vulnerable, 1 species as rare, 2 species as insufficiently known, 1 species as specially protected game, 5 species as protected game, 4 species as huntable game, 3 species as problem animals, 1 species as invasive alien, 1 species as a migrant and 1 species is not listed. At least 14 species of the mammalian fauna that occur or are expected to occur in general area are represented by rodents of which 3 species

are endemic. This is followed by bats with 13 species of which 1 species is listed as endemic and rare and carnivores with 11 species of which 1 species (9.1%) is endemic and 5 species listed as vulnerable.

Fourteen species have international conservation status (some species more than 1 classification) of which 3 species classified as vulnerable and 1 species as near threatened by the IUCN (2021) while 1 species is classified as endangered, 2 species as vulnerable and 7 species as near threatened and by the SARDB (2004) and 6 species as either CITES Appendix 1 (2 species) and 2 (4 species) species.

The most important species from the general area are the Namibian wing-gland bat (*Cistugo seabrai*) listed as endemic and rare; Littledale's whistling rat (*Protomys littledalei namibensis*) – of which the subspecies "*namibensis*" is known to occur in the ephemeral river courses in the "Swakopmund area" and found at the Tumas Project site, listed as endemic; brown hyena (*Parahyaena brunnea*) and leopard (*Parthera pardus*) listed as near threatened and vulnerable (population trends decreasing), respectively by the IUCN (2021). However, leopard is only expected to occasionally pass through the area as the general area is not viewed as favoured habitat. The Namib long-eared bat (*Laephotis namibensis*) also potentially occur in the area crossed by the proposed powerline. (EWCN, 2022).

African wild cat (*Felis sylvestris*), suffering genetic pollution with domestic cats throughout its range and the endemic Hartmann's mountain zebra (*Equus zebra hartmannae*), classified as "Vulnerable" by the IUCN (2021), are also viewed as important species in the area. (EWCN, 2022).

The Hartmann's mountain zebra in the study area belongs to the Tinkas-Langer Heinrich-Khan River subpopulation. The remaining two subpopulations in the NNNP roam the Naukluftand Kamberg-Zebra Pan areas, respectively. (Metago, 2012).

6.5 VISUAL / SENSE OF PLACE, LAND USE, SURROUNDING BUILD ENVIRONMENT AND SENSITIVE RECEPTORS

The proposed Tumas Project and associated powerline to the mine lies within the NNNP, with conservation of natural resources and tourism being two key land uses.

One of the major attractions to tourists visiting the NNNP is the scenic beauty of the park and the associated sense of place. This is primarily based on the lack of human activity and natural features inside the park, coupled with a sense of remoteness and the stark beauty of the landscape. The landscape of the Project site primarily consists of light coloured gravel plains with all their remarkable contrasts of light-coloured pegmatites and dark-coloured dolerite.

Other land uses in the area include existing (small scale) Gypsum mining, historic and ongoing exploration activities and associated access tracks. There are no communities living in the immediate vicinity of the project area.

Other linear infrastructure include the powerlines (refer to section 6.1), two existing water pipelines that supply water (one to the Langer Heinrich mine and one to the Husab Mine) that run alongside the C28 and the following roads:

- The C28 Road that links Swakopmund to Windhoek.
- The C14 Road that links Walvis Bay to Windhoek.
- The Langer Heinrich Mine access (gravel) road that turns off the C28 and leads to that mine.
- Access gravel tracks to the Project area and the Gypsum mine.
- Various unnamed gravel tracks.

The openness, vastness and subtle variation in colour of the gravel plains, evoke a reasonably strong sense of place resulting in a moderate scenic quality rating. (Metago, 2012). The scenic beauty of the project site area has however been compromised by the presence of the above-mentioned infrastructure.

There are no communities living in the immediate vicinity of the proposed powerline. The nearest communities are:

- Farms to the north – the closest inhabited farms are Palmenhorst and Goanikontes, situated approximately 17 km and 23 km north and north-east of the proposed Tumas Project area (including the northern extend of the proposed powerline) respectively.
- Arandis – approximately 50 km from the proposed Tumas Project area (including the northern extend of the proposed powerline).
- Walvis Bays and Swakopmund – approximately 20 km and 30 km from the existing Kuiseb substation respectively.
- The Topnaar Nama nomadic community – along the Kuiseb River.

The proposed powerline to the mine will be visible to the public using the C28. It will add to the cumulative negative visual impact of the existing electricity supply lines (specifically the line supplying Langer Heinrich mine).

6.6 AIR QUALITY AND NOISE

The main sources of dust in the general area result from vehicle entrainment on the roads (paved, unpaved and treated surfaces), windblown dust, and mining and exploration activities. Gaseous pollutants such as SO_2, NO_x, CO and CO_2 would result from vehicle emissions, but these are expected to be at low concentrations.

The acoustic climate of the Project area and surroundings is currently affected by:

- Light and heavy vehicle traffic along the C14 and C28 Roads.
- Elspe Minerals' gypsum mining activities within the western sector of the proposed Project area.
- Natural sources such as wind, birds, and insects.

Refer to sections 6.7 and 6.8 (and Appendices 11 and 12) of the main EIA Report for the Tumas Mining Project for detailed air quality and noise baseline information around the Tumas Project area. Dust and noise monitoring results are not available along the proposed powerline route outside of the Tumas Project area.

6.7 ARCHAEOLOGY

Refer to section 6.10 (and Appendix 14) of the main EIA Report for the Tumas Mining Project for a baseline description of the archaeological setting.

The distribution of archaeological sites shows that there is a significant archaeological concentration to the east of the Kuiseb Substation. The sites are typical of settlement of this area in the second millennium AD. Archaeologically, the area traversed by the proposed powerline and road is typical of the Namib gravel plains. Evidence of early occupation, represented by mid- to late Pleistocene stone artefacts, is extremely sparse. These scattered surface finds have limited research value, although more intensive survey may yield more plentiful finds. (Kinahan in Metago, 2012).

6.7.1.1 Section of the powerline route between the Kuiseb substation and the service corridor to the Tumas Process Plant

The area to be traversed by the powerline has been subject to two previous archaeological surveys linked to other projects. The powerline route was surveyed again for the Tumas Project.

Two archaeological sites found during previous surveys / assessment (i.e. for the Langer Heinrich powerline) along the section of the powerline route between the Kuiseb substation and the service corridor are still in place (refer to Table 4The Significance and Vulnerability ranking scales employed by the Archaeology specialist (Kinahan, 2022) are described below.

SIGNIFICANCE RANKING

- 0 - no archaeological significance.
- 1 - disturbed or secondary context, without diagnostic material.
- 2 - isolated minor find in undisturbed primary context, with diagnostic material.
- 3 - archaeological site forming part of an identifiable local distribution or group.

- 4 - multi-component site, or central site with high research potential.
- 5 - major archaeological site containing unique evidence of high regional significance.

VULNERABILITY RANKING

- 0 not vulnerable
- 1 no threat posed by current or proposed development activities
- 2 low or indirect threat from possible consequences of development (e.g. soil erosion)
- 3 probable threat from inadvertent disturbance due to proximity of development
- 4 high likelihood of partial disturbance or destruction due to close proximity of development
- 5 direct and certain threat of major disturbance or total destruction

Table 4 and Figure 10). The sites comprised an isolated artefact debris scatter and a section of the 19th century wagon route with well-preserved impressions of wagon tyres and the spoor of oxen on the desert surface. These two sites were therefore avoided during the construction activities associated with the Langer Heinrich Powerline.

No new archaeological sites were found along this section of the powerline.

Figure 10, shows the distribution of archaeological sites in relation to the proposed powerline from the Kuiseb substation to the Tumas Project area.

The Significance and Vulnerability ranking scales employed by the Archaeology specialist (Kinahan, 2022) are described below.

SIGNIFICANCE RANKING

- 0 - no archaeological significance.
- 1 - disturbed or secondary context, without diagnostic material.
- 2 - isolated minor find in undisturbed primary context, with diagnostic material.
- 3 - archaeological site forming part of an identifiable local distribution or group.
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- 0 not vulnerable
- 1 no threat posed by current or proposed development activities
- 2 low or indirect threat from possible consequences of development (e.g. soil erosion)
- 3 probable threat from inadvertent disturbance due to proximity of development
- 4 high likelihood of partial disturbance or destruction due to close proximity of development
- 5 direct and certain threat of major disturbance or total destruction

TABLE 4: ARCHAEOLOGICAL SITES ASSOCIATED WITH THE PROPOSED POWERLINE FROM KUISEB SUBSTATION[3]

Site	Site type	Significance and Vulnerability ranking
QRS 137/7	scatter	3/2 (3/4)
QRS 137/8	wagon track	2/2 (2/4)

[3] The table indicate the Significance and Vulnerability ranking of the sites as originally determined before any information was available as to the layout. The Significance ranking of the sites remains the same, but their Vulnerability ranking has been adjusted in light of the available layout information and the adjusted values appear in parentheses in the same column.

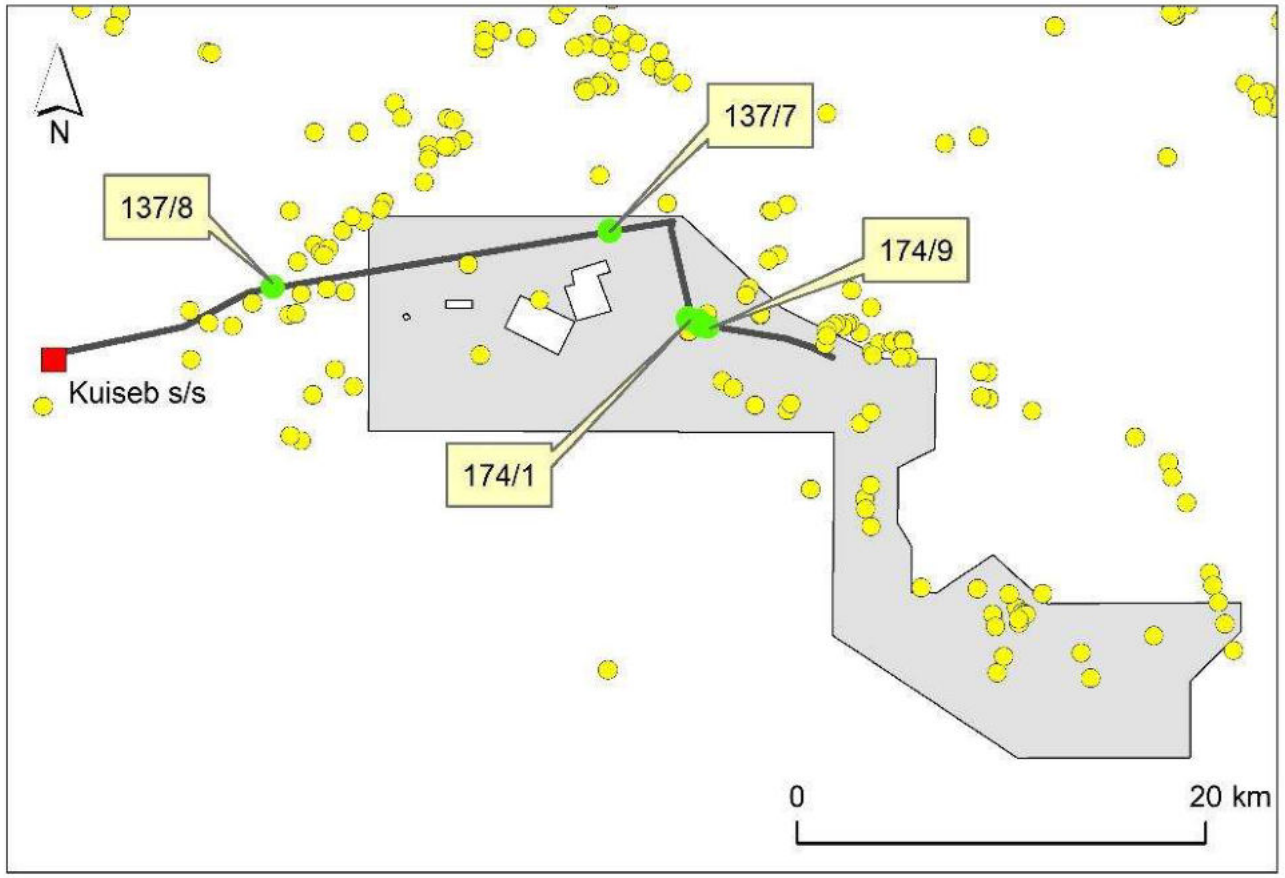

FIGURE 10: THE DISTRIBUTION OF ARCHAEOLOGICAL SITES IN RELATION TO THE PROPOSED POWERLINE FROM KUISEB SUBSTATION TO THE TUMAS PROJECT AREA (KINAHAN, 2022)

6.7.1.2 Section of the powerline route along the service corridor to the Tumas Process Plant

Figure 10 and Figure 11 correspond with Table 5, showing the distribution of archaeological sites in relation to the powerline (Figure 11 A), and archaeological sites in relation to the proposed access road and service corridor (Figure 11 B).

TABLE 5: ARCHAEOLOGICAL SITES ASSOCIATED WITH THE PROPOSED POWERLINE ALONG THE SERVICE CORRIDOR[4]

Site	Site type	Significance and Vulnerability ranking
QRS 174/1	windbreak	3/2 (3/4)
QRS 174/4	storage cairn	3/2 (3/4)
QRS 174/9	seed digging	2/2 (2/4)
QRS 174/5	storage cairn	3/2 (3/4)
QRS 174/2	outpost	3/2 (3/4)
QRS 174/24	seed digging	2/2 (2/4)
QRS 174/3	windbreak	3/2 (3/4)

[4] The table indicate the Significance and Vulnerability ranking of the sites as originally determined before any information was available as to the layout. The Significance ranking of the sites remains the same, but their Vulnerability ranking has been adjusted in light of the available layout information and the adjusted values appear in parentheses in the same column.

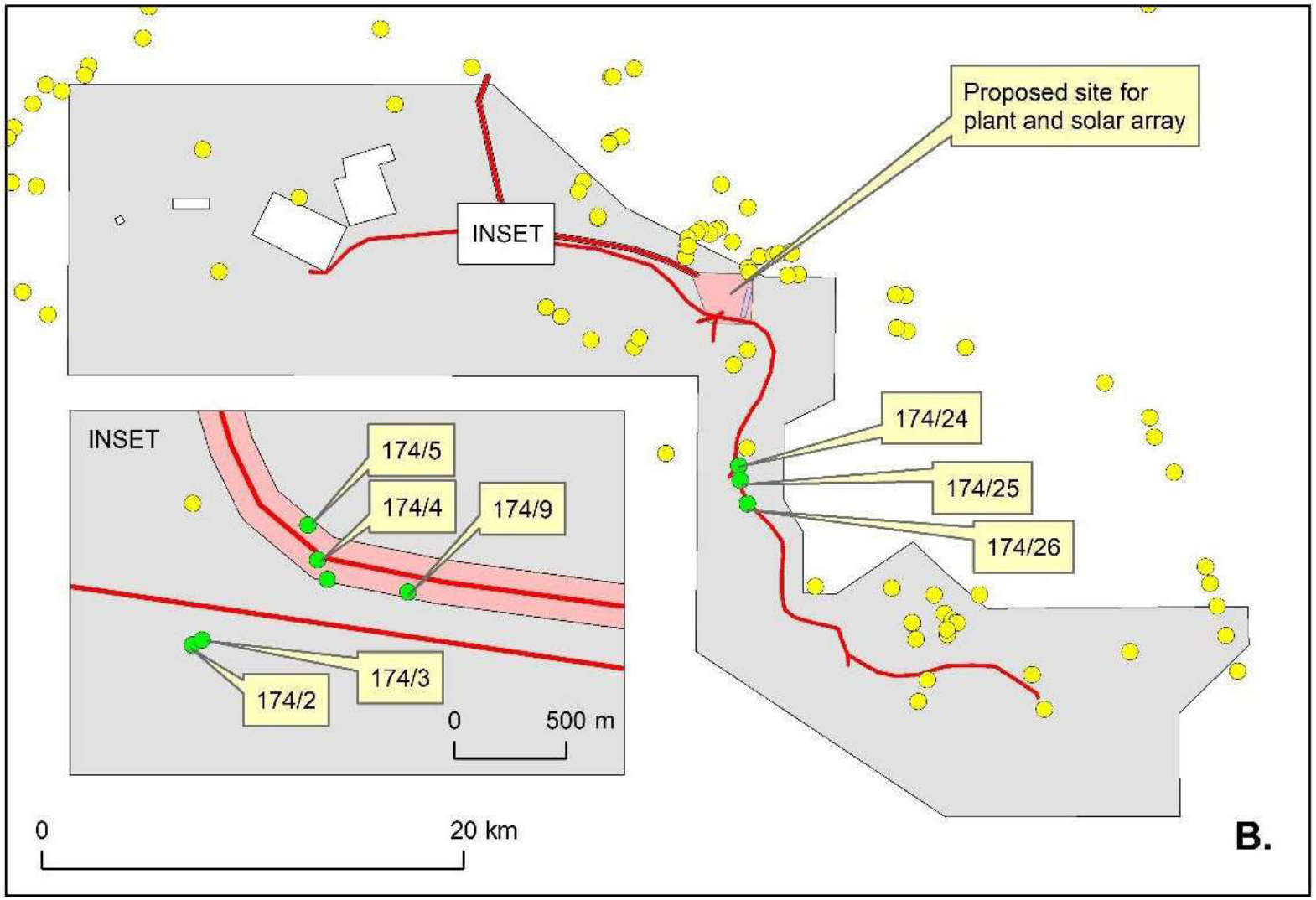

FIGURE 11: THE DISTRIBUTION OF ARCHAEOLOGICAL SITES IN RELATION TO THE PROPOSED AND ARCHAEOLOGICAL SITES IN RELATION TO THE PROPOSED SERVICE CORRIDOR (B) (KINAHAN, 2022)

6.8 SOCIO-ECONOMIC

The Erongo Region consists of seven constituencies: Omaruru, Karibib, Daures, Arandis, Swakopmund, Walvis Bay Rural and Walvis Bay Urban.

The 2011 census data revealed that 87.4% of the region's population resided in urban areas, predominantly Swakopmund and Walvis Bay. From 2001 to 2011, the annual rate of population growth in the region's urban areas was 4.3%, having an average household size of 3 people. Of the 180,000 residents, only 102,000 were born in the region, showing that about 45% of the population have migrated into the region during their lifetime. The region has a relatively young population, with a median age of 26 years.

Refer to section 6.12 (and Appendix 15) of the main EIA Report for a detailed socio-economic baseline description.

7. ENVIRONMENTAL IMPACT ASSESSMENT

This chapter describes and assesses the significance of potential impacts associated with the proposed powerline project for the unmitigated and mitigated scenarios and summarises key management and mitigation measures and design requirements necessary to avoid or reduce potentially significant impacts. The various phases of project development are taken into consideration.

7.1 INTRODUCTION

Potential environmental impacts associated with the proposed powerline were identified by Namisun in consultation with I&APs, regulatory authorities, specialist consultants and RUN during the Scoping phase of the EIA. The key potential impacts identified, are assessed in the sections below.

The activities that are summarised in this section are linked to the descriptions provided in section 4. This section must further be read in the context of the baseline conditions described in section 6.

Management and mitigation measures to address the identified (potential) impacts are summarised in the sections below and further detailed in the Powerline Specific EMP (refer to Appendix 18 of the main Tumas Project EIA Report).

Both the criteria used to assess the impacts and the method of determining the significance of the impacts are outlined in Table 6, Table 7 and Table 8.

This method complies with the EIA Regulations: Environmental Management Act, 2007 (Government Gazette No. 4878) EIA regulations. Table 6 provides the impact assessment criteria and the approach for determining impact consequence (combining nature and intensity, extent and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Table 7 and Table 8 respectively. The interpretation of the impact significance is given in Table 6. Both mitigated and unmitigated scenarios are considered for each impact.

The potential impacts are cumulatively assessed, where relevant, taking the existing environment and all other activities and facilities associated with the proposed powerline to the Tumas Project into consideration.

Namisun relied on, amongst others, the following sources in the assessment of potential impacts: Vertebrate fauna assessment (EWCN), 2022), Floral and vegetation assessment (Enviroscience, 2022), Heritage resource assessment (J. Kinahan Archaeologist, 2022) as well as the EIA Report for the proposed upgrading of the power supply at Langer Heinrich Mine (Metago, 2012) and the Environmental Scoping Assessment for Bannerman Resources 132 kV overhead transmission line and substation with metering station (Urban Green, 2021).

TABLE 6: CRITERIA FOR ASSESSING IMPACTS

IMPACT ASSESSMENT CRITERIA		
SIGNIFICANCE determination	**Significance = consequence x probability**	
CONSEQUENCE	**Consequence is a function of:** • **Nature and Intensity of the potential impact** • **Geographical extent should the impact occur** • **Duration of the impact**	
Ranking the NATURE and INTENSITY of the potential impact		
Negative impacts		
Low (L)	The impact has no / minor effect/deterioration on natural, cultural and social functions and processes. No measurable change. Recommended standard / level will not be violated. (Limited nuisance related complaints).	
Moderate (M)	Natural, cultural and social functions and processes can continue, but in a modified way. Moderate discomfort that can be measured. Recommended standard / level will occasionally be violated. Various third party complaints expected.	
High (H)	Natural, cultural or social functions and processes are altered in such a way that they temporarily or permanently cease. Substantial deterioration of the impacted environment. Widespread third party complaints expected.	
Very high (VH)	Substantial deterioration (death, illness or injury). Recommended standard / level will often be violated. Vigorous action expected by third parties.	
Positive impacts		
Low (L) +	Slight positive effect on natural, cultural and social functions and processes Minor improvement. No measurable change.	
Moderate (M) +	Natural, cultural and social functions and processes continue but in a noticeably enhanced way. Moderate improvement. Little positive reaction from third parties.	
High (H) +	Natural, cultural or social functions and processes are altered in such a way that the impacted environment is considerably enhanced /improved. Widespread, noticeable positive reaction from third parties.	
Very high (VH) +	Substantial improvement. Will be within or better than the recommended level. Favourable publicity from third parties.	
Ranking the EXTENT		
Low (L)	Local	
Moderate (M)	Regional	
High (H)	National	
Very high (VH)	International	
Ranking the DURATION		
Low (L)	Temporary/short term. Quickly reversible. (Less than the life of the project).	
Moderate (M)	moderate Term. Impact can be reversed over time. (Life of the project).	
High (H)	Long Term. Impact will only cease after the life of the project..	
Very high (VH)	Permanent	
Ranking the PROBABILITY		
Low (L)	Unlikely	
Moderate (M)	Possibly	
High (H)	Most likely	
Very high (VH)	Definitely	
SIGNIFICANCE Description		
	Positive	**Negative**
Low (L)	Supports the implementation of the project	No influence on the decision.
Moderate (M)	Supports the implementation of the project	It should have an influence on the decision and the impact will not be avoided unless it is mitigated.
High (H)	Supports the implementation of the project	It should influence the decision to not proceed with the project or require significant modification(s) of the project design/location, etc. (where relevant).
Very high (VH)	Supports the implementation of the project	It would influence the decision to not proceed with the project.

TABLE 7: DETERMINING THE CONSEQUENCE

DETERMINING THE CONSEQUENCE					
INTENSITY OF IMPACT = LOW					
DURATION	VH	Moderate	Moderate	High	High
	H	Moderate	Moderate	Moderate	Moderate
	M	Low	Low	Low	Moderate
	L	Low	Low	Low	Moderate
INTENSITY OF IMPACT = MODERATE					
DURATION	VH	Moderate	High	High	High
	H	Moderate	Moderate	High	High
	M	Moderate	Moderate	Moderate	Moderate
	L	Low	Moderate	Moderate	Moderate
INTENSITY OF IMPACT = HIGH					
DURATION	VH	High	High	Very High	Very high
	H	High	High	High	Very High
	M	Moderate	Moderate	High	High
	L	Moderate	Moderate	High	High
INTENSITY OF IMPACT = VERY HIGH					
DURATION	VH	Very high	Very High	Very High	Very high
	H	High	High	Very High	Very high
	M	High	High	High	Very High
	L	Moderate	High	High	Very High
		L	M	H	VH
		EXTENT			

TABLE 8: DETERMINING THE SIGNIFICANCE

DETERMINING THE SIGNIFICANCE					
PROBABILITY	VH	Moderate	High	High	Very high
	H	Moderate	Moderate	High	Very high
	M	Low	Moderate	High	High
	L	Low	Low	Moderate	High
		L	M	H	VH
		CONSEQUENCE			

7.2 Biodiversity

The biodiversity and more particularly the sensitive habitats and avifauna have been discussed in section 6.4. The physical footprint of the proposed powerline is largely restricted to a narrow, linear strip along the existing powerline corridor (i.e. the existing 66 kV transmission line to the Langer Heinrich mine); the proposed new (~12 km) access corridor to the Tumas Project area; and the sites where poles will be erected are small, localized and widely spaced. During the construction activities temporary impacts by the workforce, vehicles, machinery, and equipment are possible. In the operational phase, the activities will be reduced to limited vehicle and people movements because of continuous inspections and maintenance. The operations phase impacts therefore relate largely to the infrastructure (specifically the transmission lines) itself.

7.2.1 ISSUE: POTENTIAL LOSS OR DISTURBANCE OF BIODIVERSITY COMPOSITION AND HABITAT DESTRUCTION

7.2.1.1 Introduction

There are a number of activities/infrastructure in the construction, operational and decommissioning phases (see section 4.2) associated with the proposed powerline that have the potential to impact sensitive habitats and biodiversity in the broadest sense, which have the potential to cause the following impacts:

- Loss of key habitat.
- Death of animals as a result of being ploughed over by earth moving equipment, struck by vehicles and machinery using roads.
- Possible loss of territory and parts of home ranges.
- Illegal removal of protected plants.
- Destruction of nests or nesting habitat, or of feeding habitat, with consequent impacts on population viability of bird species.
- Direct mortality due to poaching of birds or eggs.
- Road-kills.
- Pollution of the environment by e.g. dust or spillages of hydrocarbons during construction activities.

7.2.1.2 Assessment of Impact

Nature and intensity

With reference to section 6.4, the proposed powerline passes through habitat that is considered either sensitive or very sensitive and this is primarily due to the presence of the lichen fields, marble ridges and washes / Tumas River. These washes / river provides denser vegetation. Particular efforts need to be made to restrict damage through theses sensitive areas.

The principal impacts that could cause habitat destruction / disturbance of biodiversity composition during the construction phase have been identified as the removal of vegetation and other structures which could reduce the habitat available to birds potentially reducing the ability to breed, forage and roost. Species likely to be affected include: Ludwig's Bustard, Kori Bustard, Ruppell's Korhaan, Gray's Lark, Lappet-faced Vulture, White-backed Vulture, Booted Eagle and Common Ostrich.

There is also the potential loss of topsoil and disruption of soil processes with subsequent impacts on the lichens, invertebrates, reptiles and small mammals this supports. Loss and damage of habitats can be greatly avoided and mitigated if sufficient care is taken and not placing poles in sensitive areas such as drainage lines and on rocky ridges.

The single areas of impact would be confined to the sites where the poles will be erected and the access tracks to these spots. Only the service road is continuous and can cause habitat fragmentation or slightly impact the connectedness of the landscape. To limit these impacts, the existing NamPower service road, within the existing 66 kV servitude, will be used as the road from where access points to the new poles will

be made. Similarly, the new site access road to the mine will be used as the service road for constructing the section of the powerline between the C28 Road and the proposed Tumas substation (see section 4.2.3).

Taking the above-mentioned into consideration, the intensity for these impacts is considered to be **moderate** reducing to **low** with mitigation.

Geographical extent

The direct destruction of biodiversity composition and habitat will be restricted to the project site. This is a **low** spatial scale.

Duration of impact

In the unmitigated scenario, the loss or disturbance of biodiversity composition and habitat destruction and related functionality is long term and will continue after the life of the project. In the mitigated scenario the impacts to key sensitive area could be minimised and the biodiversity composition and habitat may be partially restored during the operational phase. The duration is therefore **high to very high** in unmitigated scenario and **high** in the mitigated scenario.

Consequence

The determining consequence of the impact is therefore **moderate** for both the unmitigated and mitigated scenarios.

Probability

Without any mitigation the probability associated with the impacts is most likely. With mitigation, the probability may be reduced because emphasis will be placed on constructing the powerline in a manner that reduces the significance of the disturbance footprint.

Significance

The significance of the impact is rated as moderate to high for the unmitigated scenario and **low to moderate** for the mitigated scenario.

Tabulated summary of the assessed impact – loss or disturbance of biodiversity composition and habitat destruction

Mitigation	Intensity	Duration	Extent	Consequence	Probability of Occurrence	Significance
Unmitigated	**M**	**H-VH**	**L**	**M**	**H-VH**	**M-H**
Mitigated	**L**	**H**	**L**	**M**	**L-M**	**L-M**

Management and mitigation measures

Conceptual discussion of the management and mitigation measures is provided below and detailed in the Tumas Project Powerline EMP:

- Use the existing NamPower service road, within the existing 66 kV servitude as the road from where access points to the new poles will be made. Clear the least amount of tracks.
- Minimise disturbance in the sensitive lichen field areas.

- Similarly, use the new site access road to the mine as the service road for constructing the section of the powerline between the C28 Road and the proposed Tumas substation.
- Limit powerline infrastructure, activities and related disturbance to those specifically identified and described in this EIA report.
- Monopoles should not be mounted in drainage lines / Tumas River, where possible.
- Possible use of fixed point photographic monitoring of strategic locations along the route before, during and after construction to record and assess habitat change.
- Monitor numbers of indicator species (e.g. Gray's Lark, Ruppell's Korhaan) before, during and after the powerline construction activities.
- Enforce construction site speed limits.
- Dispose of waste materials in an appropriate manner;
- Monitor rehabilitation in accordance with the restoration plan to ensure long term success.
- Commission research into the restoration of lichen fields (where disturbance was unavoidable) and monitor recovery.
- Minimise ground disturbance.
- Protect environmentally sensitive areas.
- Enhance dust control near the marble ridge area.
- Avoid marble ridge for position of infrastructure.
- Look for protected flora species in areas ear-marked for position of infrastructure:
    - Avoid clearing protected species.
    - If some cannot be avoided, transplant if possible and monitor survival.
- Recreate habitats that are favourable to unique species should these have been damaged and/or destroyed during the construction.
- During the detail design phase, confirm / identify the final powerline route – along the existing 66 kV corridor and avoid important habitats/areas/features.

7.2.2 ISSUE: POTENTIAL LOSS OR DISTURBANCE OF FAUNA (INCLUDING AVIFAUNA) AND FLORA

7.2.2.1 Introduction

With reference to section 4.2, there are a number of activities/infrastructure in the construction phase that have the potential to disturb or cause a loss to fauna and flora, particularly in the unmitigated scenario, but these will be temporary in nature, usually existing for a few weeks to a few months.

The risk of collision with the powerlines and possible electrocutions are the principal impacts during the operation phase which will continue beyond the life of the mine because this powerline may be used beyond closure of the mine as part of its distribution into the grid in future. These issues are further assessed in section 7.2.3.

7.2.2.2 Assessment of Impact

Nature and intensity

Loss of vegetation and associated biota could occur due to the infrastructure development of the proposed powerline. The impact of heavy machinery during construction, and especially the excavation of holes to plant pylons for the proposed powerline are also expected to be detrimental to reptiles, amphibians, mammals and birds, especially ground nesting species associated with the affected area/habitat. This would affect a relatively small area over a short/limited period of time. However, open holes could act as pitfall traps and should not be left open overnight.

The impact of the construction activities associated with the proposed powerline infrastructure is however not expected to be detrimental to reptiles, amphibians and mammals – i.e. it would not impede their movement, etc. However, some small mammal species are attracted to the substations and on-pole-mounted switching gear probably for foraging and heat and may cause problems at these structures. This could be mitigated by electrostatic animal and/or "squirrel guards" on the bushings.

Other issues include damage caused by vehicles, littering, dust, general pollution, firewood collection and poaching by personnel involved in the construction of the powerline which can lead to a loss of plants, seeds and animals.

Given the above discussion, the unmitigated intensity is **moderate to high** which can reduce to **low to moderate** depending on the successful implementation of the mitigation measures. Natural processes would remain altered in some areas.

Geographical extent

Given that biodiversity processes are not confined to the proposed project site, the spatial scale of impacts will extend beyond the site boundary in the unmitigated scenario particularly which impacting on directional movements of animals. The unmitigated and mitigated scale is therefore **moderate**.

Duration of impact

General disturbances could result in injury or death which is considered to be **long term**.

Consequence

The determining consequence of the impact is therefore moderate to high for the unmitigated scenario and **moderate** for the mitigated scenario.

Probability

Without any mitigation the probability of negatively impacting on biodiversity through disturbance is **high to very high**. With mitigation, the probability will reduce to **low** because most of the disturbances can be controlled through implementation and enforcement of practices, policies and procedures.

Significance

The significance of the impact is rated as **medium to high** for the unmitigated scenario and **low to medium** for the mitigated scenario.

Tabulated summary of the assessed impact – loss or disturbance of fauna (including avifauna) and flora

Mitigation	Intensity	Duration	Extent	Consequence	Probability of Occurrence	Significance
Unmitigated	**M-H**	**H**	**M**	**M-H**	**H-VH**	**H**
Mitigated	**L-M**	**H**	**L**	**M**	**L-M**	**L-M**

Management and mitigation measures

Conceptual discussion of the management and mitigation measures is provided below and detailed in the Tumas Project Powerline EMP:

- See management and mitigation measures in section 7.2.1.
- Enforce site speed limits.
- Adhere to NNNP rules and regulations.
- Ensure all relevant rules and regulations are communicated to workers and visitors.
- Enforce no hunting and no collecting policies (e.g. egg and bird collection) and inspect construction sites. The harming, maiming, hunting or poaching of wildlife in any form or manner shall be prohibited.
- Prohibit the killing of perceived dangerous vertebrate fauna – e.g. snakes and carnivores.
- Regularly inspect areas adjacent to operations for signs of litter, wood collection and hunting.
- Only allow construction personnel and registered visitors on site.
- Open holes could act as pitfall traps and should not be left open overnight and/or covered.
- Initiate a bird/mammal mortality monitoring protocol associated with the powerline and substation.
- Off road driving, other than the designated tracks, should be prohibited throughout the area.
- Remove and relocate slow moving species, especially reptiles (e.g. Namaqua chameleon).
- Avoid sensitive habitats i.e. lapped-faced vulture nest sites.
- Avoid felling habitat trees (especially trees with nests; known perching sites – e.g. large and/or dead trees). Avoid felling any trees, where possible.
- Rehabilitate all areas disturbed by the construction activities – i.e. laydown areas, etc.
- Avoid disturbing birds, especially raptors, at breeding sites.
- No pesticides may be used for powerline maintenance.
- Implement a contractor code of conduct.

7.2.3 ISSUE: COLLISION OF BIRDS WITH THE OVERHEAD POWERLINE AND ELECTROCUTION OF BIRDS

7.2.3.1 Introduction

With reference to section 6.4.3, avifauna is expected to be affected by the overhead powerline. Birds expected to be potentially affected (i.e. collision and/or electrocution) by the powerline developments include:

- Birds flying at pylon height – e.g. bustards, swifts, sandgrouse, ravens, raptors and aquatic and marine species.
- Birds with nocturnal transients – e.g. Palaearctic migrants and wetland birds (i.e. coastal area).

- Birds following certain geological and/or landscape features (e.g. rivers; mountain ranges, etc.) whilst foraging and/or migrating – e.g. aquatic/marine species and raptors.
- Birds attracted to the area during rainfall events – e.g. bustards – and temporary water sources in ephemeral rivers/drainage lines – e.g. aquatic/marine species.

Electrocution is not usually a major problem on high voltage overhead lines due to large clearances although dependent on design structures for 132 kV lines. However, high risk electrocution designs are dependent on the grounded component on top of the 132 kV monopoles (i.e. phase-earth electrocution risk). Typical problems include bird streamers (i.e. faecal matter), especially from large raptors (e.g. eagles, vultures), which cause the biggest risk of flashovers due to bird streamers bridging the air gap on 132 kV structures.

Pylon sensitive bird species known/expected to occur in the general area include: Black stork; Booted eagle; Cape eagle owl; Kori bustard; Lappet-faced vulture; Ludwig's bustard; Martial eagle; Peregrine falcon; Tawny eagle; Verreaux's eagle; and White-backed vulture.

The powerline route will intersect a number of drainage lines / washes and the Tumas River, with habitats that are sensitive in terms of the birdlife present.

Overall, the impacts of powerline structures on avifauna and recommended mitigation measures are well documented.

7.2.3.2 Assessment of Impact

Nature and intensity

In the unmanaged scenario, the following impacts could occur once the overhead powerline pole structures, all transformer structures (e.g. switchgears) and substation have been installed:

- Birds that are vulnerable to strikes with powerlines are provided in section 7.2.3.1.
- Because of the nature of birds' vision, cables are often not seen and the bird usually strikes it at great speed, knocking it unconscious (to be killed by the subsequent fall or by predators on the ground) or killing it outright.
- The above mentioned impacts could take place on any parts of the powerline, but are more likely in sections where the line crosses flight corridors such as drainage lines or rivers.
- Collisions may also take place on stay wires (e.g. on poles at bend points), for instance when a bird is flushed from its position on the ground.
- Collisions may take place even during the construction phase, once the conductors have been strung but not energised, as well as during the operational phase.
- The clustering of existing infrastructure in the area, including other powerlines, the road network and communication masts, as well as other developments including mines, would increase the cumulative effect of any impacts associated with the proposed development.
- An electrocution occurs when a bird causes an electrical short circuit by physically making contact with live components, or by bridging the air gap between live components and/or live and earthed components.

- Electrocutions may take place when birds attempt to perch or nest on powerline poles, transformers and substation structures.
- The proposed steel monopole structure has large clearances, but if the poles are made of steel, and earthed, a large bird sitting on the insulator would be at risk to electrocution, especially if the structure is wet or damp from fog.
- Electrocutions of large birds would be possible should they try to perch on the insulators of the proposed monopole structures.
- Note that concrete structures could also pose an electrocution risk when wet.
- The electrocution risk is increased if birds are attracted to an open source of water nearby for bathing or drinking, and the birds become wet; this applies particularly to colonial species that are gregarious (e.g. vultures).

The intensity of this impact is **moderate** for the unmitigated scenario, since the natural ecological functions and processes can continue, but in a modified way. With mitigation, the intensity reduces to **low**.

Geographical extent

The extent of the impact is local (site-specific), since it is confined to the powerline, i.e.: within the project corridor. However, biodiversity (including avifauna) processes are not confined to the proposed project site, the spatial scale of impacts will extend beyond the site boundary in the unmitigated scenario particularly which impacting on directional movements of birds. The unmitigated extent is therefore **moderate**.

Duration of impact

Collisions / electrocutions could result in injury or death which is considered to be **long term**.

Consequence

The determining consequence of the impact is therefore **moderate** for the unmitigated scenario and **moderate** for the mitigated scenario.

Probability

The probability that birds will collide with the proposed powerline and related structures is **very high** in the sensitive areas. With mitigation measures this can be reduced to **moderate**.

The probability that birds will be electrocuted as a results of the proposed powerline and related structures is possible, i.e.: **moderate**. With mitigation measures this can be reduced to **low to moderate**.

Significance

The significance of the impact is rated as **high** for the unmitigated scenario and **low to moderate** for the mitigated scenario.

Tabulated summary of the assessed impact – Collision of birds with the overhead powerline and electrocution of birds

Mitigation	Intensity	Duration	Extent	Consequence	Probability of Occurrence	Significance
Unmitigated	**M**	**H**	**M**	**M**	**M-VH**	**H**
Mitigated	**L**	**M**	**L-M**	**L-M**	**M**	**L-M**

Management and mitigation measures

Conceptual discussion of the management and mitigation measures is provided below and detailed in the Tumas Project Powerline EMP:

- During the detail design phase, confirm / identify the final powerline route – along the existing 66 kV corridor.
- Where the proposed new transmission line deviates south-eastwards (i.e. along the proposed new service corridor from the C28 to the Tumas sub-station):
    - It should be fitted with bird flight diverters (BFDs) (e.g. coils and/or flappers placed 50m apart);
    - Tower design (132kV) - The grounded component on top of the 132 kV monopoles (i.e. phase-earth electrocution risk) should avoid mortalities.
- Install BFDs at the following important habitats along the route between the Kuiseb substation and the service corridor to the Tumas Process Plant:
    - Drainage line at 7.9 – 8.1 km
    - Drainage line 23.3 and 27.2 km.
    - Section passing the existing lapped-faced vulture nest.
- Ensure that line span lengths are decreased where possible, especially where the line crosses deep drainage lines, in order to increase the visibility of the line.
- Prior to the construction of the proposed new 132 kV powerline the entire length of the existing 66 kV powerline, as well as other similar 132 kV transmission line(s) in the area, will be monitored for any signs of bird strike, paying attention to night flying species such as flamingo, on a three month interval for a year. The results of this monitoring shall be used to inform the type of bird diversion mitigation that is required to be installed on the section of the new powerline between the Kuiseb sub-station and the C28. Also, install BFDs on the proposed new 132 kV line, along those specific sections similar to the existing BFDs along the 66 kV line.
- Following the commissioning of the new powerline a bird (mortality) monitoring programme will be implemented to monitor the effectiveness of the mitigation measures agreed above and the results will be used to inform the need for any improved bird diversion mitigation measures as a result of any significant bird mortality trends identified.
- Carry out dedicated monitoring patrols along the entire powerline route on a regular basis.
- Record bird mortalities on a standardised form.

7.3 Soils and Land Capability

Soils are a significant component of most ecosystems. As an ecological driver, soil is the medium in which most vegetation grows and a range of vertebrates and invertebrates exist.

7.3.1 ISSUE: LOSS OF SOIL RESOURCES THROUGH PHYSICAL DISTURBANCE AND FROM POLLUTION

7.3.1.1 Introduction

The proposed powerline project has the potential to damage the soil resource through physical loss of soil and/or the contamination of soils during the construction phase (and to a lesser extent during decommission) at the sites where the poles will be erected and the access tracks to these spots. This could impact on the soils ability to sustain natural vegetation and reducing land capability. Contamination of soils may also contribute to the contamination of surface and groundwater resources. Loss of the topsoil resource reduces chances of successful rehabilitation and restoration.

7.3.1.2 Assessment of impact

Nature and intensity

In the unmitigated scenario, pollution of soils from various sources can result in a loss of soil functionality as an ecological driver because it can create a toxic environment for vegetation, vertebrates and invertebrates that rely on the soil. It could also negatively impact on the chemistry of the soils such that current growth conditions are impaired.

Physical soil disturbance can also result in a loss of soil functionality as an ecological driver (unmitigated). In the case of erosion, the soils will be lost to the area of disturbance, and in the case of compaction the soils functionality will firstly be compromised through a lack of rooting ability and aeration, and secondly the compacted soils are likely to erode because with less inherent functionality there will be little chance for the establishment of vegetation and other matter that naturally protects the soils from erosion.

With reference to section 6.3 and 6.4, soil crust lichens occur in certain sections along the proposed powerline route, which are vital to soil stabilisation and primary production. This biological soil crust is vulnerable to disturbance and there is little evidence of the lichen components achieving full recovery following human disturbances in semi-arid to arid environment, much less in hyperarid desert.

Given the low key nature of the construction activities and the limited amount of plant and equipment required this is considered to be a **moderate** intensity. In the mitigated scenario, the number of pollution events and the disturbance to the underlying soil structure should be significantly less which reduces the potential intensity to **low**.

Geographical extent

The potential soil pollution will be restricted to the project site and the physical disturbance of the soil will be restricted to the area of direct influence of the infrastructure/activities associated with the proposed project.

Duration of impact

Most pollution impacts if not cleaned up will remain until long after closure. In the mitigated scenario most of these potential impacts should either be avoided or be remediated within the life of the project. Important related issues are the reaction time of the clean-up team and the chosen remediation method. The loss of soil and related functionality is long term and will continue after the life of the project. In the mitigated scenario, spills are avoided / minimised or cleaned up and the soil is conserved and disturbance is minimised which reduces the duration of the impact if the soil functionality is not impacted.

Consequence

In the unmitigated scenario, the determining consequence of this potential impact is moderate.. In the mitigated scenario, this reduces to low.

Probability

Without any mitigation the probability of impacting on soils through pollution events is **high to very high**. With mitigation, the probability will be significantly reduced to low because emphasis will be placed on preventing pollution events and on quick and effective remediation if pollution events do occur as well as minimising the disturbance to the soil.

Significance

In the unmitigated scenario, the significance of this potential impact is **moderate to high**. In the mitigated scenario, the significance reduces to **low**.

Tabulated summary of the assessed impact – Electrocution of birds on the interconnection overhead powerline

Mitigation	Intensity	Duration	Extent	Consequence	Probability of Occurrence	Significance
Unmitigated	**M**	**H**	**L**	**M**	**H-VH**	**M-H**
Mitigated	**L**	**L**	**L**	**L**	**L**	**L**

Management and mitigation measures

Conceptual discussion of the management and mitigation measures is provided below and detailed in the Tumas Project Powerline EMP:

- Pollution prevention through basic infrastructure design and through education and training of workers (permanent and temporary).
- The required steps to enable fast reaction to contain and remediate pollution incidents.
- Polluted soil and building rubble must be transported away from the site to an approved and appropriately classified waste disposal site.
- Specifications for post rehabilitation audit criteria to ascertain whether the remediation has been successful.
- Topsoil of holes should be preserved as a seedbank.
- Limit the disturbance of soils to what is absolutely necessary both in terms of site clearing and in terms of project development and use of vehicles.

7.4 Archaeology

The section discusses the impacts on Archaeology associated with the proposed powerline project, as part of the Archaeology Specialist study (Kinahan, 2022). With reference to section 4.2, there are a number of activities/infrastructure, mainly during the construction phase that have the potential to damage archaeological resources. These include Infrastructure establishment, preparation of the foundations including clearing and soil stripping, building infrastructure, vehicle movement.

7.4.1 ISSUE: DISTURBANCE OR DESTRUCTION TO ARCHAEOLOGICAL SITES AND THEIR LANDSCAPE SETTING

7.4.1.1 Introduction

The main issue concerning the heritage resources of the proposed powerline from the Kuiseb substation is the possible disturbance or destruction of the archaeological sites and their landscape setting. Without mitigation, implementation of the powerline project will result in the very likely destruction or disturbance of the identified archaeological sites (see section 6.7) associated with the powerline from Kuiseb substation.

Kinahan (2022), in his archaeological impact assessment, first addresses the implications of the Significance and Vulnerability rankings presented in section 6.7, before placing these in the context of the Namisun assessment methodology (section 7.1).

Archaeological sites in Namibia are protected under the National Heritage Act (27 of 2004) which makes provision for archaeological assessment of developments such as this. With reference to section 6.7, various archaeological sites were found during previous surveys and again as part of the current study, in close proximity to the proposed powerline route.

7.4.1.2 Assessment of impact

Nature and intensity

With reference to section 6.7, the proposed powerline route crosses an area of relatively high archaeological sensitivity. The main issue concerning the heritage resources is the disturbance or destruction of the archaeological sites and their landscape setting. The likelihood of such impacts is considered to be high in the unmitigated scenario. While the consequences of impacts to most of the individual archaeological sites are considered to be moderate or low in terms of standard archaeological Significance and Vulnerability ranking, the combined impact on the archaeological landscape will be high.

Without mitigation, implementation of the powerline project will result in the very likely destruction or disturbance of archaeological sites along the powerline route from Kuiseb substation. While none are in themselves sites of high archaeological significance, slight modification of the powerline routes and surface works will mitigate the impact on the archaeological and landscape setting of these particular sites. In the case of six sites associated with the section of the powerline along the service corridor, some re-routing of the powerline would prevent direct impacts. The two sites along the section of the pipeline between the Kuiseb substation and the service corridor can be avoided during the design and construction phase (as was the case for the Langer Heinrich Powerline).

Taking the above-mentioned into consideration, the severity for these impacts is considered to be **high in the unmitigated scenario** reducing to **moderate** with mitigation.

Geographical extent

The extent of the impacts is **low** or local only when limited to the individual site. However, the survey and assessment has demonstrated that the sites form an integrated archaeological landscape in which the scale of activity envisaged by the Tumas Project equates to a regional (moderate) **extent** since the sites form part of a larger archaeological heritage grouping.

Duration of impact

Since disturbance or destruction of archaeological sites cannot be reversed and is therefore permanent, the duration of the impacts is considered to be **very high** for the unmitigated scenario.

Consequence

In the unmitigated scenario, the determining consequence of this potential impact is **moderate to high**. In the mitigated scenario, this reduces to **moderate**.

Probability

Without any mitigation the probability of impacts on the disturbance and destruction of archaeological sites and their landscape setting (relating to the proposed powerline) is **moderate to high**. With mitigation, the probability will be moderate.

Significance

In the unmitigated scenario, the significance of this potential impact is **moderate to high**. In the mitigated scenario, the significance reduces to **low**.

Tabulated summary of the assessed impact – Disturbance or destruction to archaeological sites and their landscape setting

Mitigation	Intensity	Duration	Extent	Consequence	Probability of Occurrence	Significance
Unmitigated	**H**	**VH**	**M**	**H**	**M-H**	**H**
Mitigated	**M**	**H**	**M**	**M**	**M**	**M**

Management and mitigation measures

Conceptual discussion of the management and mitigation measures is provided below and detailed in the Tumas Project Powerline EMP:

- In the case of six archaeological sites associated with the section of the powerline along the proposed service corridor some re-routing of the powerline route (where required) would prevent direct impacts.
- The proposed new power supply and powerline route from Kuiseb to the C28 should be confined to the existing corridor as far as possible.
- Design and construct the powerline infrastructure to avoid the two archaeological sites along the section of the powerline between the Kuiseb substation and the service corridor (i.e. isolated artefact debris scatter and a section of the 19th century wagon track).

- The project footprint should be kept as small as possible and confined to that described in this EIA;
- All workers (temporary and permanent) will be educated about the importance of preserving archaeological sites.
- If there are any chance finds of archaeological sites that have not been identified and described in the specialist report a chance find procedure shall be followed. The key component of which is to ensure that the site remains undisturbed until a specialist has assessed the site, assessed the potential damage, advised on the necessary management steps, and advised on the requirements for authority consultation and permitting.

7.5 Visual

Visual impacts may be caused by activities and infrastructure in the construction and operational phases. The powerline powerline could be used beyond closure of the mine as part of its distribution into the grid in future. Should a decision be made to remove the powerline at the end of the LOM of the Tumas Project no impacts in the closure phase would be anticipated.

7.5.1 ISSUE: VISUAL IMPACT AND SENSE OF PLACE

7.5.1.1 Introduction

With reference to section 6.5, the NNNP offers a natural landscape and scenic beauty, and sense of place primarily for tourists visiting the area. This is due to the lack of human activity and the presence of natural features (i.e. wilderness), that provides a nature related 'feel' in the park. Sections of the proposed powerline will be visible to road users on the C28 road. However, the transmission line will run parallel to the existing powerline to the Langer Heinrich mine. A new service corridor, including the access road to the mine, the water pipeline (likely an underground section) and the proposed powerline, will however be constructed (refer to section 4.1.2 for further details).

The cumulative impact with the existing (Langer Heinrich mine) powerline is considered in the assessment below. The proposed new powerline will largely follow the same corridor as the existing line, except for the final ~12 km which will be along the proposed service corridor to the Tumas process plant area.

7.5.1.2 Assessment of impact

Nature and intensity

The severity of visual impacts is determined by assessing the change to the visual landscape as a result of the proposed new powerline for receptors in the area. The visual receptors are the immediate travellers on the C28 road.

The visual landscape is determined by considering: landscape character, sense of place, aesthetic value, sensitivity of the visual resource and sensitive views. In this regard, the area in which the section of the powerline route between the Kuiseb substation and the service corridor to the Tumas Process Plant will be situated has already been compromised by the existing (Langer Heinrich) powerline. The Langer Heinrich powerline continues towards the north-east of the C28 to the mine. Therefore the area is considered to have a moderate to low scenic quality rating. However, the proposed new powerline will be visible to

people using the C28 and specifically the section along the service corridor will add to the cumulative negative visual impact of the existing development along the C28. The visibility of the proposed power supply infrastructure is therefore predicted to be high.

When considering the potential change to the visual landscape the key issues are: visual exposure, visual intrusion, and sensitivity of receptors (Metago, 2012). Each of these issues is discussed below:

- Visual exposure is the extent to which the power supply infrastructure and activities will appear in the various views. Visual exposure of the powerline (cumulatively) will be high because of its visibility from the C28. The section of the powerline, along the service corridor to the Tumas process plant area, will however be largely obscured by the rocky outcrops (i.e. granites) (refer to section 6.3.1).
- Visual intrusion is the extent to which the infrastructure and activities will contrast with the visual landscape and can/cannot be absorbed by the landscape. As a powerline already exists, the proposed new supply lines will not be completely out of context within the current visual environment and a moderate visual intrusion rating is therefore predicted. The new power supply infrastructure will have a negative effect on the visual quality of the landscape but is therefore considered partially compatible with the existing uses and will be partially absorbed into the landscape from viewing areas. The Tumas Project will involve further activities and infrastructure developed at the Tumas Project area. These are cumulatively assessed in the main EIA Report for the Project.
- Sensitivity of receptors relates to the way in which people will view the visual intrusion. In this regard, it is anticipated that tourist receptors will be sensitive but existing mine related receptors (including workers at Langer Heinrich mine and the proposed Tumas mine) may not be sensitive. The sensitivity of landscape receptors along the C28 is considered to be moderate as it is considered to be a landscape of moderately valued characteristics but reasonably tolerant of change.

Taken together, the intensity for all project phases is **low to moderate**.

Geographical extent

The powerline will be visible to receptors beyond the site boundary, which result in a **moderate** extent in both the unmitigated and mitigated scenarios.

Duration

The duration of the visual impact, is beyond the life of the project and therefore will be **high** in both the unmitigated and mitigated scenarios.

Consequence

The consequence of this impact is **moderate** in the unmitigated and will not change in the mitigated scenario.

Probability

The probability of the visual impact occurring is **high** in both the unmitigated and mitigated scenarios.

Significance

The significance is **moderate** in both the unmitigated and mitigated scenarios.

Tabulated summary of the assessed impact – Visual impact and sense of place

Mitigation	Intensity	Duration	Extent	Consequence	Probability of Occurrence	Significance
Unmitigated	**L-M**	**H**	**M**	**M**	**H**	**M**
Mitigated	**L-M**	**H**	**M**	**M**	**H**	**M**

Management and mitigation measures

Conceptual discussion of the management and mitigation measures is provided below and detailed in the Tumas Project Powerline EMP:

- The minimum amount of existing vegetation and topsoil should be removed from construction areas.
- The proposed pylons should run as close as possible (adjacent) to the existing powerline.
- On-going management of rehabilitated areas until they are properly established.

7.6 Surface and groundwater

There are a number of activities in the construction phase and during maintenance activities that have the potential to pollute surface water and groundwater particularly in the unmitigated scenario. These include:

- Cement mixing.
- Management of dirty water.
- Storage and handling of new and used materials and chemicals (including hydrocarbons).
- Waste management (non-mineralised).
- Equipment servicing.
- Use of vehicles and equipment that may leak lubricants and fuel.
- Transformer oil management.

No disturbance or interference with flow patterns is foreseen as activities within the drainage lines can be avoided.

7.6.1 ISSUE: POLLUTION OF SURFACE WATER AND GROUNDWATER

7.6.1.1 Introduction

Surface water flows occur infrequently and for short durations after rainfall events, in washes and the Tumas River (refer to section 6.3). Most of this water seeps into the topsoil and shallow sandy zones and the near surface zones. Therefore the surface and shallow groundwater systems are both vulnerable to pollution and the impact assessment is necessarily linked.

The potential impacts are linked to the potential contamination of groundwater and surface water resulting from waste and accidental spills and leaks of hydrocarbons during construction or Transformer oil.

7.6.1.2 Assessment of impact

Nature and intensity

Small areas may be contaminated because of improper waste management and accidental spills and leaks.

In the unmitigated scenario, surface water may collect contaminants which will cause pollution of valuable water resources in washes. The dilution effect of flood water has not been studied in detail and whilst it will reduce the concentration of any contaminants it will not entirely remove any pollution.

Large quantities of pollutants would have to be released into the environment for the downstream surface water and groundwater to become contaminated. However, this proposed powerline project (and associated activities) would not be associated with such large volumes.

The intensity is therefore regarded as moderate in the unmitigated scenario. In the mitigated scenario surface water run off should remain uncontaminated and the severity reduces to low by implementing the management and mitigation measures presented in the EMP.

Geographical extent

The extent of the potential impacts in the unmitigated scenario could impact on surface water (i.e. washes and the Tumas River) beyond the Project site boundary. With mitigation impacts these should be contained within the project boundary.

Duration

In the unmitigated scenario, potential impacts relating to pollution of surface water and groundwater could remain **long term**. In the mitigated scenario potential impacts will either be contained or avoided.

Consequence

In the unmitigated scenario the determining consequence is **moderate**. With mitigation this reduces to **low**.

Probability

In the unmitigated scenario even if pollution occurs, the impact points are in remote areas not used by humans. However, the ground and surface water within the washes and Tumas River are very important from an ecosystem point of view. The probability of impacts occurring in the unmitigated scenario is therefore possible. With mitigation pollution should be prevented.

This translates into a low impact probability for both scenarios.

Significance

In the unmitigated scenario the significance of this potential impact is moderate and in the mitigated scenario this reduces to low.

Tabulated summary of the assessed impact – pollution of surface water and groundwater

Mitigation	Intensity	Duration	Extent	Consequence	Probability of Occurrence	Significance
Unmitigated	**M**	**H**	**M**	**M**	**M**	**M**
Mitigated	**L**	**L**	**L**	**L**	**L**	**L**

Management and mitigation measures

Conceptual discussion of the management and mitigation measures is provided below and detailed in the Tumas Project Powerline EMP:

- Refer to the management and mitigation measures in section 7.3.
- Implement the Waste Management requirements (see EMP). No littering.
- Ensure proper maintenance of all vehicles and equipment and conduct continuous maintenance and check-ups.
- Develop and implement an Emergency Preparedness and Reponses Plan / Procedure for all operational related spillages.
- Washing of any equipment are not allowed on site.
- 'Best' practice measures should be applied to minimise the potential discharge of pollutants onto open soil especially near draining lines / Tumas River.

7.7 Air quality and noise

7.7.1 ISSUE: AIR POLLUTION AND NOISE POLLUTION

There are a number of activities in the construction phase that have the potential to pollute the air (largely due to dust generation) and cause noise, including:

- Infrastructure establishment.
- Preparation of the foundations.
- Building internal linear infrastructure.
- Vehicle movement and exhaust fumes.
- Generators.
- Construction vehicle movement.
- Earth moving equipment.
- General building activities.
- Inspection vehicle movements.

7.7.1.1 Introduction

With reference to section 6.6, there are no communities living in the immediate vicinity of the proposed powerline.

The potential air quality and noise impacts will be short term and temporary in nature. There will also be limited impacts caused by inspection vehicles during the operation phase. This section focuses on related human impacts because the impacts on biodiversity are considered in section 7.2.

7.7.1.2 Assessment of impact

Nature and intensity

The limited activities and associated air pollution sources resulting from the installation of the powerline will have no material impact on air quality. Furthermore, there are no noise and air quality sensitive receptors

in close proximity to the proposed activities. The severity in the unmitigated and mitigated scenario is therefore considered to be **low**.

Geographical extent

Dust generation and noise would impact on areas outside of the project area, i.e. a **moderate** impact.

Duration

In both the unmitigated and mitigated scenarios, the potential for dust and noise impacts will occur through the life of the project. This is a **moderate** duration.

Consequence

In the unmitigated and mitigated scenario, the determining consequence of this potential impact is **low**.

Probability

In the unmitigated and mitigated scenarios there is a low probability of the dust and noise impacting on human receptors given the remote location of the powerline. This is a **low** probability.

Significance

In the unmitigated and mitigated scenarios, the significance is **low**.

Tabulated summary of the assessed impact – air pollution and noise pollution

Mitigation	Intensity	Duration	Extent	Consequence	Probability of Occurrence	Significance
Unmitigated	**L**	**M**	**M**	**L**	**L**	**L**
Mitigated	**L**	**M**	**L**	**L**	**L**	**L**

Management and mitigation measures

Conceptual discussion of the management and mitigation measures is provided below and detailed in the Tumas Project Powerline EMP:

- Dust suppression measures to be in place during the construction and operational phases, when required.
- All registered complaints (regarding noise) will be documented, investigated and efforts made to address the area of concern where possible.
- Ensure that vehicles and equipment are well-maintained and fitted with the correct noise abatement measures.
- No amplified music allowed on site.
- The contractor shall not use sound amplification equipment on site unless in emergency situations.
- Limit construction times to daylight hours.

7.8 Socio-economic

The proposed construction of the powerline to the Tumas Project would have positive socio-economic benefits, i.e. job creation and skills development and impacts to the local, regional and national economy.

With reference to section 4.2.4, the total peak workforce on the powerline and switchyard during construction is expected to be 40 workers.

Potential negative impacts relate to poaching and littering (construction workers) as well as potential in-migration and housing issues in the coastal towns, however the latter issues are largely viewed as cumulative impacts with the greater Tumas Project.

Section 7 of the EIA Report for the proposed Tumas Project provides assessments for the above-mentioned impacts associated with the proposed Tumas Project. Similar management and mitigation measures as well as enhancement measures (for positive impacts) would be relevant to the proposed powerline project No further assessment is therefore required.

8. ENVIRONMENTAL IMPACT STATEMENT AND CONCLUSIONS

The environmental aspects and potential impacts relating to the proposed construction and operations of the powerline have been successfully identified and assessed. Table 9 provides a summary of potential cumulative impacts associated with the proposed Tumas powerline Project.

TABLE 9: SUMMARY OF POTENTIAL CUMULATIVE IMPACTS ASSOCIATED WITH THE PROPOSED TUMAS POWERLINE PROJECT

Section	Potential impact	Significance of the impact	
		Unmitigated	Mitigated
Biodiversity	Potential loss or disturbance of biodiversity composition and habitat destruction	**M-H**	**L-M**
	Potential loss or disturbance of fauna (including avifauna) and flora	**H**	**L-M**
	Collision of birds with the overhead powerline and electrocution of birds	**H**	**L-M**
Soils and land capability	Loss of soil resources through physical disturbance and from pollution	**M-H**	**L**
Archaeology	Disturbance or destruction to archaeological sites and their landscape setting	**H**	**M**
Visual impacts	Visual impact (and sense of place) from sensitive views within the Namib Naukluft National Park.	**M**	**M**
Surface water and ground water	Pollution of surface water and groundwater.	**M**	**L**
Air quality and noise	Air pollution and noise pollution	**L**	**L**

It is Namisun's opinion that the environmental aspects and potential impacts relating to the proposed powerline have been successfully identified and assessed as part of this EIA process. Relevant management and mitigation measures have been provided to avoid / minimise environmental impacts. These measures are included in the Powerline EMP and will become legally binding if MEFT provides a positive decision on the Application for the proposed Project.

Namisun believes that a thorough assessment of the potential impacts associated with the proposed construction and operation of the powerline has been achieved and will ensure MEFT to make an informed decision regarding the issuing of an ECC.

The way forward is as follows:

- Review and decision of the final report (including I&APs' comments) by MME and MEFT.

9. REFERENCES

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Also refer to the reference list in the main EIA Report for the Proposed Tumas Project.
Various references were made in the respective Specialist Reports, which are not be repeated in this report. For the detailed lists of references, please refer to the relevant appendices (Appendices 6-15) in the main EIA report for the Tumas Project.