



ENVIRONMENTAL ASSESSMENT REPORT
FOR: LOW VOLUME SEAL
CONSTRUCTION OF 6KM OF ROAD IN
GAM AS PART OF THE LOW VOLUME
SEAL PROGRAM.

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ROADS AUTHORITY NAMIBIA

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TABLE OF CONTENTS

1.	INTRODUCTION.....	1
2.	BACKGROUND INFORMATION.....	1
3.	DETAILS OF THE APPLICANT AND CONSULTANT.....	2
3.1	Details of the Applicant.....	2
3.2	Details of the Environmental Consultants.....	2
4.	ROAD CONSTRUCTION DESCRIPTION.....	3
4.1	Borrow Pits.....	3
4.2	Construction Water Requirements.....	4
4.3	Residues and Emissions During Construction.....	4
5.	ASSUMPTIONS AND LIMITATIONS.....	5
6.	POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK.....	5
7.	DESCRIPTION OF BASELINE CONDITIONS.....	10
7.1	Climate.....	10
	7.1.1 Rainfall and Temperature.....	10
7.2	Air quality.....	11
	7.2.1 Existing Sources of Air Pollution.....	11
	7.2.2 Sensitive Receptors.....	11
7.3	Topography.....	11
7.4	Geology.....	12
7.5	Soils.....	13
7.6	Land Use.....	14
7.7	Surface and Groundwater.....	14
7.8	Fauna.....	15
7.9	Flora.....	16
7.10	Archaeological and Anthropological Resources.....	17
7.11	Noise.....	17
7.12	Visual Impacts.....	17
7.13	Socio-economic background.....	18
8.	ENVIRONMENTAL IMPACTS.....	19
8.1	Environmental Impact Assessment Process Methodology.....	20
8.2	Environmental Impact Assessment Summary.....	32
8.3	Public Participation Process.....	34
9.	ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN.....	46

9.1	ESMP Administration	46
9.2	Roles and Responsibilities	46
9.3	Environmental Awareness Training	47
9.4	Public Participation	48
9.5	Environmental Auditing	48
9.6	Documentation, Record keeping and Reporting Procedures	48
9.7	Environmental Mitigation Measures / Environmental Management Plan	50
9.8	Non-Compliance	58
10.	CONCLUSION AND RECOMMENDATIONS	60
11.	REFERENCES	61
APPENDIX A	62
APPENDIX B	63
APPENDIX C	64
APPENDIX D	65

LIST OF FIGURES

Figure 1: Locality of the Gam project	1
Figure 2: EIA Process.....	9
Figure 3: Temperature and Precipitation - Tsumkwe 2018	10
Figure 4: Temperature and Precipitation - John Pandeni (close to Grootfontein) 2018	11
Figure 5: Geology of the project area	12
Figure 6: Soils of the project area	13
Figure 7: Surface water drainage.....	14
Figure 8: Typical vegetation cover of the project area	16

LIST OF TABLES

Table 1: Capability Statement for the Environmental Project Team	2
Table 2: Listed Activities in Terms of the Environmental Management Act.....	5
Table 3: Environmental Scoping Checklist.....	21

ACRONYMS / ABBREVIATIONS

BID	Background Information Document
DEA	Directorate of Environmental Affairs
EMCN	Enviro Management Consultants Namibia
EMP	Environmental Management Plan
IAPs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism

ROADS AUTHORITY OF NAMIBIA

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1. INTRODUCTION

Enviro Management Consultants Namibia (EMCN) is appointed to undertake the Environmental Assessment relating to the proposed project – Construction of 6km of low volume seal road in Gam.

2. BACKGROUND INFORMATION

The Project forms part of the planned upgrade to Low-Volume Seal (LVS) Program of selected gravel roads due to the high traffic volume.

This gravel roads are approximately 6km in length and included access to the clinic, school and airport, included under this appointment will be the resurfacing of the surfaced section in Tshumkwe and the realignment of a 1-kilometre section of M0113 to improve safety for the users.

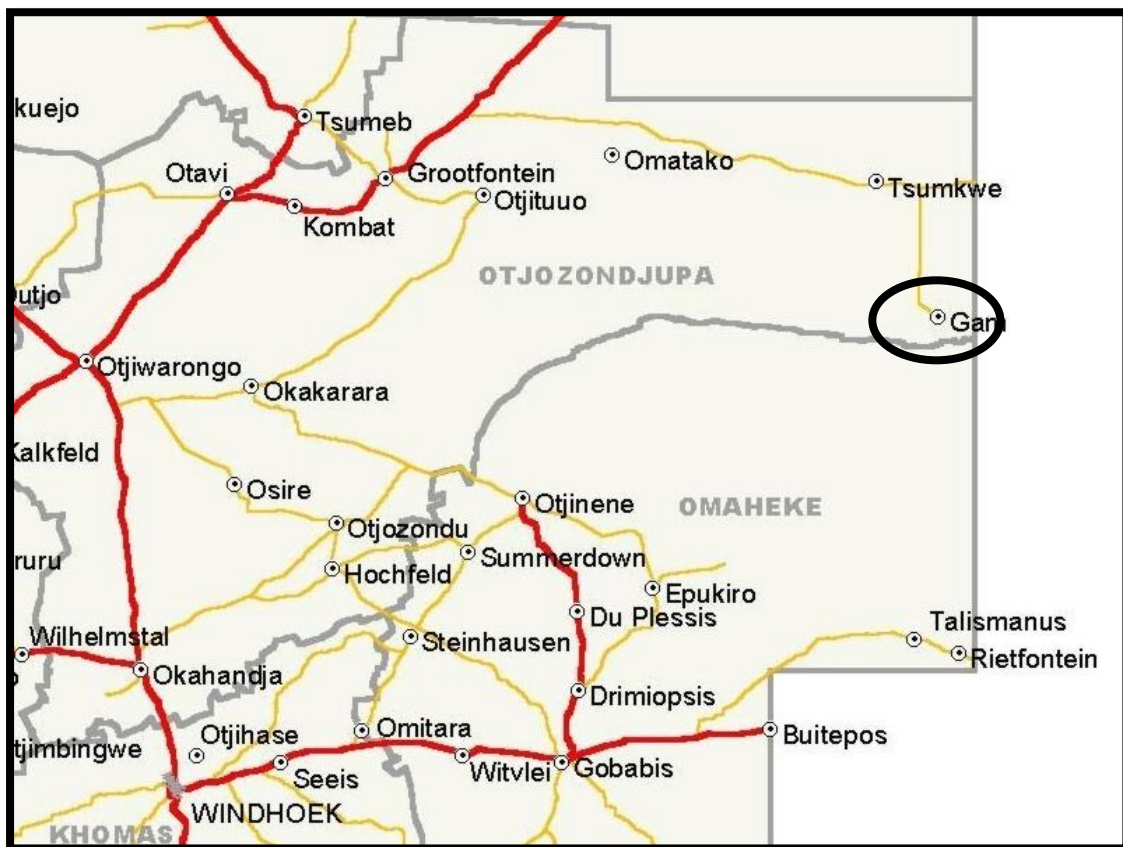


Figure 1: Locality of the Gam project

Gam settlement is located in the Otjozondjupa Region and serve as an important hub for the Namibian resettlement program for returning refugees from Botswana. Currently Gam have a population of less than 5000 people and is the closest business centre for the community with two schools, a clinic and some facilities for livestock marketing.

Currently Gam have 415 households with a further development of 300 houses planned as part of the development of Gam.

The upgrading of this road to Low volume seal standards will greatly increase the agricultural potential of this area, which will create employment and reduce poverty and also the ease of movement to government facilities.

3. DETAILS OF THE APPLICANT AND CONSULTANT

3.1 Details of the Applicant

Applicant	Roads Authority of Namibia
Contact Person	Mr. Johann Essmann Regional Engineering Manager Otjiwarongo Region
Contact Numbers	+264 81 160 8727
Email:	essmannj@ra.org.na

3.2 Details of the Environmental Consultants

The environmental project team from EMCN is led by Mr. Rian du Toit, an Environmental Assessment Practitioner with more than 19 years of working experience in the field of Environmental Management. Table 1 highlights the experience and qualifications of the environmental team.

Table 1: Capability Statement for the Environmental Project Team

Name	Role in the Project	Qualifications and Experience
Rian du Toit	Environmental Assessment Practitioner and Project Manager	Master’s degree in the Environmental and Social fields. Mr. du Toit has more than 19 years’ experience in the field of environmental management, mostly related to roads, services, transmission lines and mining right applications.

4. ROAD CONSTRUCTION DESCRIPTION

Road construction actions depend on the technically and economically viable/feasible options identified which include some degree of layer works (fill, wearing course, sub-base and base layers). Due to the low volume seal, a bitumen surface will be added on top of the layer works.

The following briefly describes the various layers:

Sub Base:

- It is a layer of granular material provided above the selected layer generally natural gravel. This material is obtained from borrow pits alongside the planned route.

Base course:

- It is the layer immediately under the surface treatment or bitumen seal / asphalt.
- As base course lies close under the pavement surface which is subjected to severe loading. The material in a base course must be of high quality compared to the underlying layers and its construction must adhere to design standards.
- This material is obtained from borrow-pits but may have to be screened, crushed and screened, modified by addition of lime material or stabilized to conform to specifications. The material may also have to be obtained from stone quarries opened by the contractor or from commercial sources.

Bituminous Pavement:

For good service throughout the full life cycle of the bituminous pavement, the bituminous surface treatment must have the following qualities:

- Resistance to cracking or ravelling.
- Resistance to weather including the effect of surface water heat and cold.
- Resistance to internal moisture, particularly to water vapours.
- Tight impermeable surface.
- Smooth riding and none skidding surface.

The design aims to meet the above requirements for considerable number of years (need proper design, good construction supervision and maintenance during the life of the road).

4.1 Borrow Pits


Suitable materials are needed for the construction of the selected layer, subbase, shoulder, gravel wearing course and base course. Fill material is also required to ensure a vertical alignment appropriate for the chosen design speed.

To achieve the abovementioned, suitable material is required from borrow pits. These pits are opened using various heavy-duty machines and the material is hauled from the pit to the required sections of the road where the material is needed. It is imperative that the material excavated complies with the

engineering standards required for the construction of the road and is therefore tested on a regular basis.

Another important issue is hauling distance. The borrow pits cannot be situated too far from the section of the road where the material is needed, therefore borrow pits cannot be located too far apart (incurring costs due to hauling).

For this project only one borrow pit area will be used. This is an existing borrow pit and is situated just north of Gam:

Borrow Pit number	Location	Picture
BP001	20, 13, 26.258 S 20, 47, 20.469 E	

4.2 Construction Water Requirements

There is an open water source available for this project in the form of an artesian water hole. Contractors must obtain the consent of relevant landowners prior to utilizing a water source and Clause B1219 of the Project Specifications (COLTO)¹ contains requirements and standards related to the quality of water used for construction purposes. A water extraction license is required according to the Water Resources Management Act N0.11 of 2013.

4.3 Residues and Emissions During Construction

Due to the type of activities that are associated with the construction of roads it is very unlikely that any toxic materials will be present on site. The only risk might be hazardous hydrocarbon substances such as fuels (diesel and petrol) and oils used by the construction machines.

Bitumen might be used for sealing the newly constructed road (dependent on the chosen alternative to be followed). Bitumen in itself is a stable hydrocarbon substance, but the "prime" medium is very volatile and should be considered as a hazardous liquid. The cleaning of bitumen tanker nozzles and

¹ Standard Specifications for Bridge Works for State Road Authorities - COLTO

cleaning of the bitumen trucks always poses a challenge when it comes to environmental management.

Domestic and camp construction wastes generated at the contractor camps can very easily be managed due to the close proximity to the existing towns of Gam. Proper waste management principles should be enforced as stipulated by the Environmental Management Plan.

Sewage management is also a great concern at any construction camp. Proper planning of the sewage facilities should be done at the start of such a project to prevent sewage overflow and the contamination of soils and water. The number of workers should be determined, and the sewage facilities planned accordingly.

5. ASSUMPTIONS AND LIMITATIONS

It is assumed that the information provided by Consulting Team and the information in the Inception Report and other relevant documentation used for the compilation of this Environmental Report is accurate and relevant to this date. It is also assumed that the secondary data collected for the bio-physical and socio-economic environments are true and correct. These include data sources associated with printed books, data available on the internet and other studies as indicated in this report.

The Contract determined the available time and funds available to complete this project. Communication between the various team members was assured through regular meetings.

6. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

This section deals with the regulatory requirements that are applicable to this project.

THE NAMIBIAN LEGISLATIVE FRAMEWORK

During the preparation of the Scoping Report, the following legislation and policies were considered:

- Environmental Management Act 7 of 2007 ;
- Environmental Regulations of 2012;
- Roads Authority Environmental Manual of 2014
- Road Ordinance 17 of 1972

The activities listed in Table 2, as contained in Appendix B of the Republic of Namibia’s Environmental Regulations, may be applicable and will require Environmental Clearance.

Table 2: Listed Activities in Terms of the Environmental Management Act

Activity No.	Activity Description
10.2	The route determination of roads and design of associated physical infrastructure where - (a) it is a public road; (b) the road reserve is wider than 30 meters; or (c) the road caters for more than one lane of traffic in both directions.

Currently, Environmental Impact Assessments are guided and reviewed by the Directorate of Environmental Affairs (DEA) in the Ministry of Environment and Tourism. Guidelines for various projects have been compiled to help improve EIA practice in Namibia.

There are a number of sector laws in Namibia that have relevance to Scoping and EIAs. The following table provides a summary of the relevant sector legislation.

Statute	Provisions	Project Implications
Forest Act 12 of 2001	<p>Provision for the protection of natural vegetation.</p> <p>No regulations promulgated yet.</p> <p>Section 22(1): It is unlawful for any person to “<i>cut, destroy or remove</i>”:</p> <ul style="list-style-type: none"> • any living tree, bush or shrub growing within 100 meters from a river, stream or watercourse on land that is not part of a surveyed erf or a local authority area without a license. • Vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilizing the sand or gully. 	<ul style="list-style-type: none"> • Permits should be obtained from Department of Forestry for the removal of protected trees.
National Heritage Act 27 of 2004	Heritage resources to be conserved in development.	All archaeological sites to be identified and protected.
Nature Conservation Ordinance 4 of 1975	Requires a permit for picking (the definition of “picking” includes damage or destroy) protected plants without a permit.	In case there is an intention to remove protected species, then permits will be required.
Preservation of Trees and Forests under the Forest Act, 2001.	Protection to tree species.	The Contractor will require a permit to remove any protected trees.
Soil Conservation Act 76 of 1969	<p>Prevention and combating of soil erosion; conservation, improvement and manner of use of soil and vegetation, and protection of water sources.</p> <p>The Minister may direct owners or land occupiers in respect of <i>inter alia</i> water courses. No Regulations exist to this effect.</p>	<p>Removals of vegetation cover to be avoided and minimized at all costs.</p> <p>Soil pollution to be avoided.</p>
Water Resources Management Act 11 of 2013	<p>Section 44 states that no person may abstract or use water, except in accordance with a license issued under this Act. Abstraction of water including open waters, aquifer, brackish or marine water.</p> <p>Section 566 states that any drilling to be conducted or enlargement of an</p>	<p>Obligation not to pollute surface water bodies.</p> <p>The following permits are required in terms of the Water Act:</p> <ul style="list-style-type: none"> • water abstraction license that will form part of the contract obligations.

Statute	Provisions	Project Implications
	<p>existing borehole can only be conducted under a permit issued under the Act.</p> <p>Section 66 states that a person may not discharge any effluent directly or indirectly to any water resource on or under the ground or construct any effluent treatment facility or disposal site unless in compliance with a permit issued under Section 70 of the Act. Where “effluent” means any liquid discharge as a result of domestic, commercial, industrial or agricultural activities.</p>	
<p>Public Health Act 36 of 1919</p>	<p>Provides for the prevention of pollution of public water supplies.</p>	<p>A general obligation for the Contractor not to pollute the water bodies in the area.</p>
<p>Government Notice No 121 of 1969 as amended as well as Government Notice No. 156 of 1 Aug 1997</p>	<p>This is the general health regulations applicable to this project.</p>	<p>The Contractor will enforce the conditions required to ensure the health and safety of the workers.</p>

An important section 30 from the Road Ordinance 17 (1972) clarify the obtainment of material required for the construction of the roads in Namibia. It states the following:

For the purpose of the construction, maintenance or repair of a proclaimed road the President of Namibia may through his representatives, officers or contractors enter upon any land with any vehicle, tool, material or animal and after the expiry of a period of fourteen days after a written notice of his intention to do so –

- (i) has been handed to the owner, lessee or occupier of such land; or
- (ii) has been sent to the last known address of such owner, lessee or occupier by registered post; or
- (iii) has been left at a conspicuous place on such land

he may without any compensation to the owner, lessee or occupier of the land, remove any material which may be necessary for such construction, maintenance or repair from such land or process it on such land and thereafter remove it there from and for this purpose he may build and maintain any access roads which he may consider necessary: Provided that –

(a) nothing shall be removed from any garden or other land usually cultivated, nor within two hundred and fifty metres of any house nor within fifty metres of any kraal;

(b) every excavation, including an excavation for a sample and an experimental pit, shall as soon as possible be filled up or fenced off or shall otherwise be made safe for human beings and animals again to the satisfaction of the owner, lessee or occupier of such land or as the President of Namibia directs;

(c) any road provided for this purpose shall be ripped up in such a way that it cannot be washed away

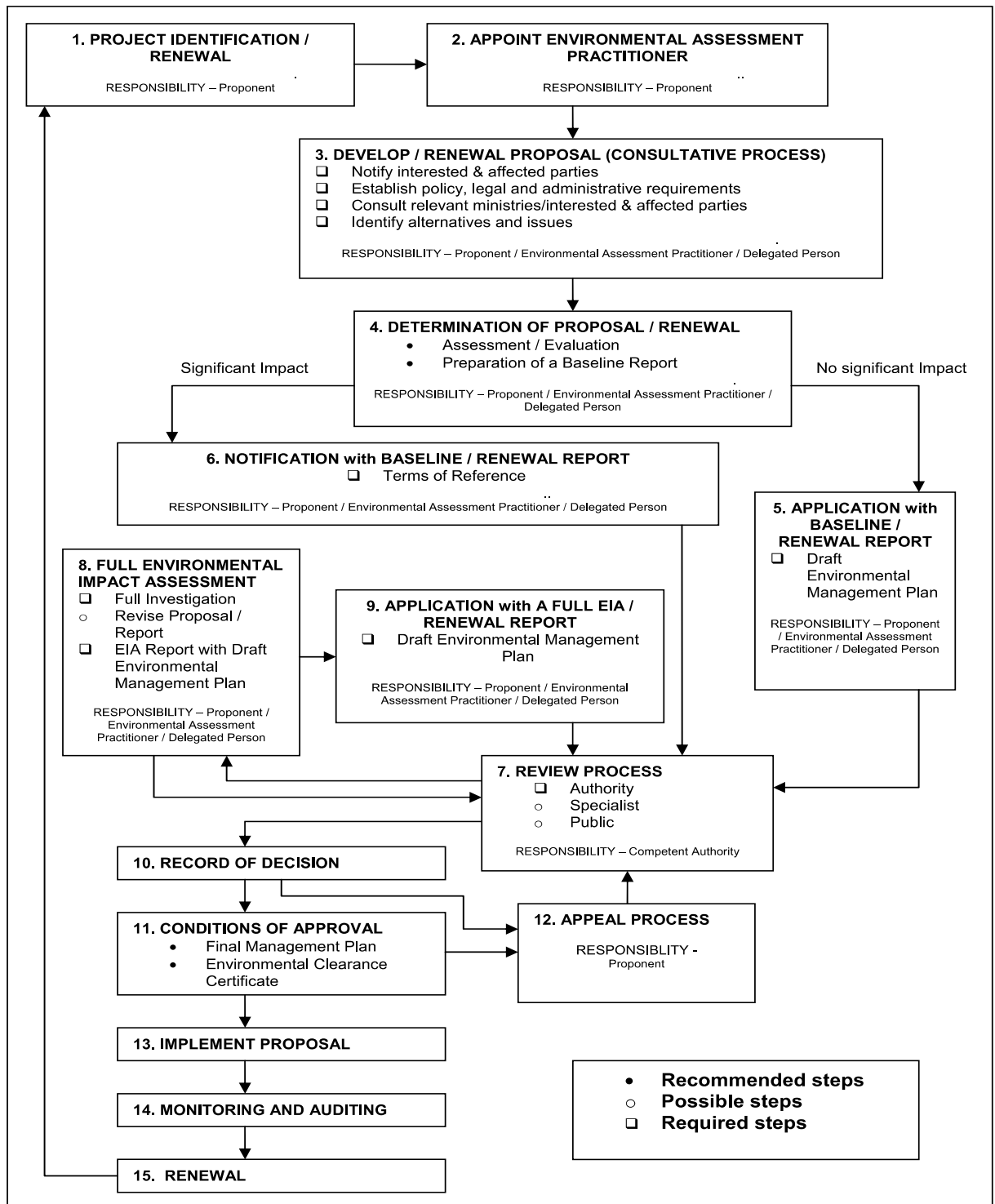
should the owner, lessee or occupier so desire;

(d) the President of Namibia, his representatives, officers or contractors shall, in exercising these powers take every care to prevent damage, injury, loss or inconvenience to the owner, lessee or occupier concerned:

Provided further that the powers granted to the President of Namibia in terms of this section shall only be exercised within the area of a local authority in consultation with the local authority

A flowchart indicating the entire Scoping/EIA process is shown in *Figure 2 below*:

Figure 2: EIA Process



7. DESCRIPTION OF BASELINE CONDITIONS

This section describes the bio-physical aspects of the study area to allow for identification of elements of environmental sensitivity and to provide the context for the assessment of significance of impacts related to the proposed project. Data sets are available for Tsumkwe which is situated just north of Gam and these data sets will be used for the baseline description.

7.1 Climate

Arid and semiarid climates cover about a quarter of Earth’s land surface, mostly between 50° N and 50° S, but they are mainly found in the 15–30° latitude belt in both hemispheres. They exhibit low precipitation, great variability in precipitation from year to year, low relative humidity, high evaporation rates (when water is available), clear skies, and intense solar radiation.

According to Köppen and Geiger, the climate of the Tsumkwe area is classified as **BSh** characterised as a mid-latitude steppe and desert climate. This climate type of the Köppen classification is characterised by extremely variable temperature conditions, with annual means decreasing and annual ranges increasing poleward, and relatively little precipitation.

7.1.1 Rainfall and Temperature

Data is received from SASSCAL Weather Net. This climatic data is up-to-date and very accurate. The following data for Tsumkwe is derived from figures received from 2018:

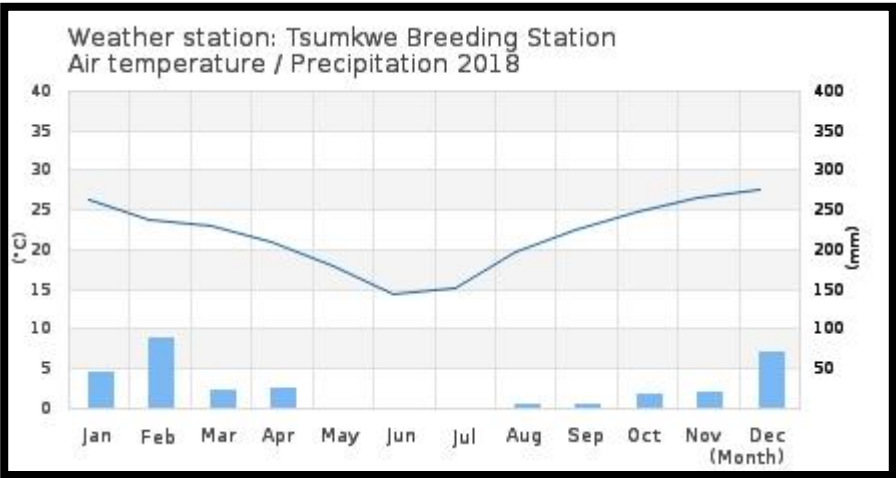


Figure 3: Temperature and Precipitation - Tsumkwe 2018

Tsumkwe and Gam is situated in the summer month rainfall areas where precipitation mostly occur from August to April. The months of December, January and February records the most rainfall. The average rainfall for these two areas is normally around 475mm per annum. During 2018 only 302mm of rainfall was recorded at Tsumkwe.

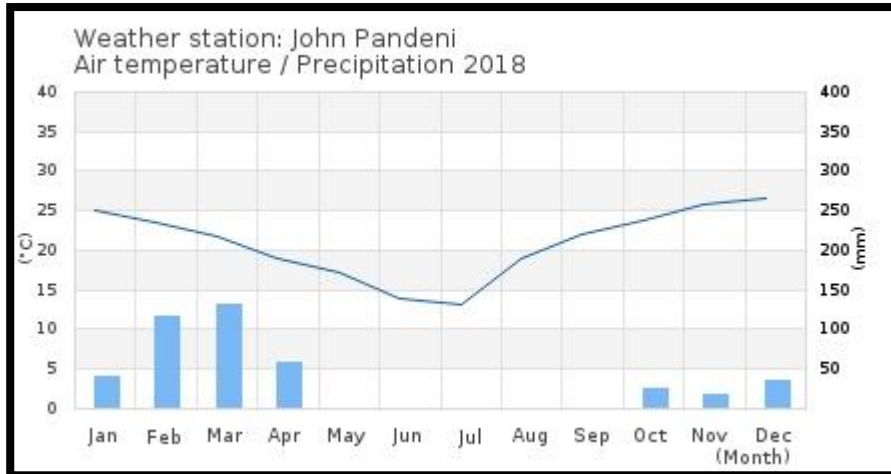


Figure 4: Temperature and Precipitation - John Pandeni (close to Grootfontein) 2018

Temperatures recorded at the two stations does correlate strongly with hot summers (November to February) and cooler winters (June to August). The maximum air temperatures are recorded as 40 degrees Celsius and the minimum -2 degrees Celsius. The average air temperature during the winter months is 15 degrees Celsius and 27 degrees during the summer.

7.2 Air quality

7.2.1 Existing Sources of Air Pollution

The proposed project site is located in rural areas where the air quality is not affected by large scale anthropogenic activities. The following sources of air contamination have been identified:

- Vehicle dust and exhaust gas emissions
- Wind-blown dust from sparsely vegetated surfaces
- Veld fires

7.2.2 Sensitive Receptors

The proposed project is located in a sparsely populated area; therefore, no potential sensitive receptors have been identified.

7.3 Topography

The proposed project traverse over a very flat area with a gentle slope downwards from west to east. The average height above sea level is ranges between 1100 and 1300m.

7.4 Geology

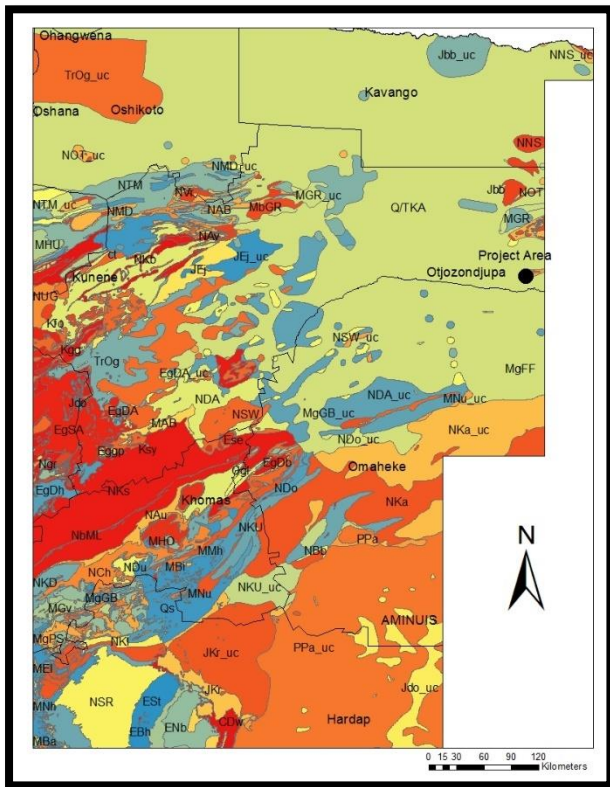


Figure 5: Geology of the project area

the Aha Hills and consist largely of sandstones and carbonates correlated with the Nosib and Otavi Groups (Balfour et al., 1985).

Overlying the basement rocks in the Tsumkwe area and in blocks and segments farther south are the magnetically distinctive Karoo rocks which, although largely unexposed, are presumed to consist of volcanic and sedimentary rocks. Several large, distinctive circular structures are prominent in the geophysical pattern of the Karoo sequence.

Their origin and significance are as yet unknown (Rio Tinto Namibia, unpub. data, 1995). The Karoo sequence was apparently deposited in the vicinity of a basement high, as it rests directly upon the pre-Damara basement. The broad band of the ca. 1500 km-long Okavango dyke swarm, which trends southeast across the continent from southern Angola to eastern South Africa, signaled late Karoo uplift and mantle upwelling reflecting a failed arm to a triple junction (Uken and Watkeys, 1997).²

The Kalahari Sequence extensively overlies the older rock and may exceed a thickness of 250m in the Eiseb Graben. The Kalahari Sequence is regionally divided into lower, middle and upper units with the following general lithologies:

From regional geologic mapping and geophysical surveys (Eberle et al., 1995; 1:1 000 000 Geological Map of Namibia, 1980), a northeast-trending belt of pre-Damara basement crosses northeast Namibia and extends through the Tsumkwe region and into Botswana. Where exposed in the east of the Tsumkwe area, these rocks consist of fine-grained granitic gneiss, amphibolite, and coarse megacrystic granite. They have been correlated previously with the ca. 1800 m.y. old Grootfontein Metamorphic Complex (Balfour et al., 1985). Between the villages of Tsumkwe and Gam, to the south, the belt appears to be truncated or to flex downwards, as its highly magnetic character terminates in a series of covered, northeast-trending linear features or fault zones (B. Corner, pers. comm. 1995; T. Smalley, pers. comm. 1995).

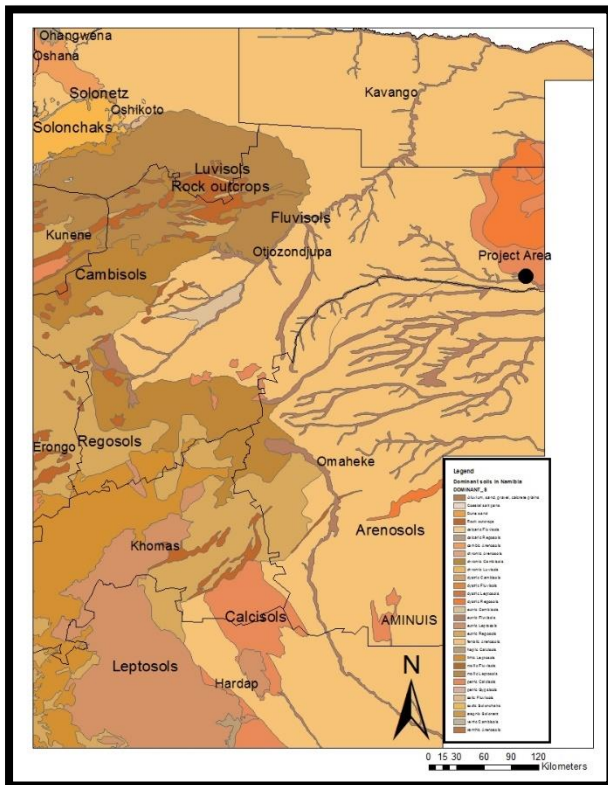
Southeast of this region is a magnetically relatively quiet zone considered to be composed of Damara-age sediments. The Damara rocks are exposed in

² K.O. Hoal , B.G. Hoal , W.L. Griffin, and R.A. Armstrong. 2000. Characterization of the age and nature of the lithosphere in the Tsumkwe region, Namibia. *Communs geol. Surv. Namibia*,

Upper Kalahari	:	aeolian sand
Middle Kalahari	:	sand, sandstone, silcrete and calcrete
Lower Kalahari	:	mudstone, siltstone, sandstone and consolidated gravel

The middle and upper units are variably exposed throughout the area. The lower unit has been encountered in boreholes in the immediate vicinity of Gam and may be present in down faulted blocks in the lower Eiseb catchment and in the Kalahari trough northwest of Tsumkwe. Recent deposits in form of a thin but extensive veneer of soil and hill wash material occur throughout the area. Sand dominates the topographical higher areas (dunes) with silty clay in depressions (interdunes).³

7.5 Soils



Namibian soils vary greatly and different forces impact on the development of the various soils. The area of Gam is characterised by the following soil types:

Leptosols soil types are found in actively eroding landscapes, especially in the hilly or undulating areas that cover much of the southern and north-western Namibia. These coarse textured soils are characterised by their limited depth caused by the presence of continuous hard rock, highly calcareous or cemented layer within 30cm of the surface. The Leptosols are, therefore, the shallowest soils to be found in Namibia and they contain much gravel. As a result, their water-holding capacity is low, and vegetation in areas which they occur is often subject to drought. Rates of water run-off and water erosion can be high when heavy rains fall.

Figure 6: Soils of the project area

Arenosols (high sand stratum, low nutrient content, low organic content, alkaline pH-conditions, typical for arid climate conditions with high evaporation rates and salinity) soil group (Christelis 2001). These soils are the dominant soil type in the north-eastern part of Namibia. These soils are formed from wind-blown sand and usually extend to a depth of at least one meter, with sand generally making up more than 70% of the soil. The rest of the soil comprises of clay and silt. The sandy texture allows water to drain through the soil rapidly resulting in low moisture available for plants and poor nutrient concentrations. The loose structure of the soil means there is little run-off and water erosion, but wind erosion dominates (Mendelsohn 2009).

³ BGR-DWA Desk Study. 1999. Data base for future decisions regarding the necessity and feasibility of future geophysical and hydrogeological investigations in the study areas, Oshivelo, Eastern Caprivi and eastern Tsumkwe – Otjinene. DWA - Windhoek

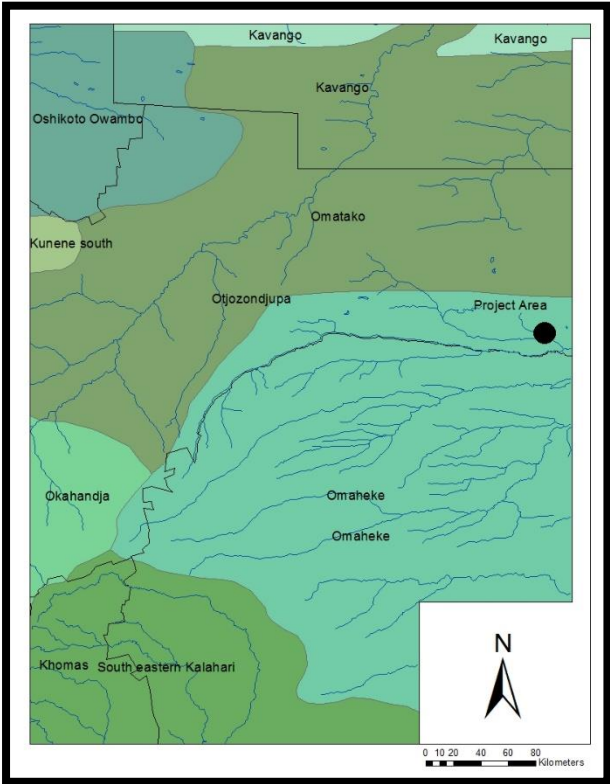
Calcsols are found in depressions or other low-lying areas of the landscape, and typically contain accumulations of calcium carbonate, often in a cemented form called calcrete. Although large white blocks of calcrete are often visible on the surface, calcrete is generally formed beneath the surface and is also often present in a soft powder form. These soils are potentially fertile, but iron and zinc may not be available for plants because of the high concentration of calcium.

7.6 Land Use

The proposed project area is located in communal agricultural land and the project area is predominantly used for livestock farming. Tourism plays a dominant economic role in this area and therefore some land use changed from agricultural to tourism or a combination of both.

The Nyae Nyae Conservancy is the oldest, as well as the second largest conservancy in the country, covering close to 9000 square kilometres. Most of the 2 300 residents are from the Ju/'hoansi ethnic group, a sub-group of the San. Historically, the Nyae Nyae area occupied by the Ju/'hoansi stretched into Botswana in the east, north beyond what is today Khaudum National Park, south to the settlements of Eiseb and Gam and west beyond the settlement of Aasvoëlnes. Today, Botswana creates the eastern border of the conservancy, while to the south, west and north, Ondjou and N#-a-Jaqla Conservancies and Khaudum National Park adjoin Nyae Nyae, and in turn border onto other conservancies to form a huge contiguous conservation landscape.⁴

7.7 Surface and Groundwater



The project lies in the Eiseb -Epukiro River Basin. The area between Eiseb and Epukiro is one of eleven water basins in Namibia. It has a total surface area of 10,665 square kilometres (4,118 sq mi) and borders Botswana in the east, reaches southwards up to Gobabis, and covers parts of the Omaheke and Otjozondjupa Regions. The total annual water yield of the basin is 20 million cubic metres (710×106 cu ft), mainly ground water⁵.

Groundwater is known as the Okanavgo – Epukiro Basin located in huge flat areas around Gam. Most of the area belongs to the Okavango drainage system, including the dormant, usually dry riverbeds draining east towards the central Kalahari.

Figure 7: Surface water drainage

⁴ Nyae Nyae Conservancy. NACSO 2012. Nacso.org.na

⁵ "Integrated Water Resources Management" (PDF). Ministry of Agriculture, Water and Forestry. p. 4. Retrieved 30 January 2018

Groundwater within the area is hosted in two distinct aquifers and fractured bedrock aquifers. In northern Omaheke, the Kalahari is generally non-saturated, but ground water may be present in fractures in the underlying bedrock. Adjacent to the Botswana border, from Gam in the South to the Kaudom Park in the north, bedrock formations crop out and groundwater occurs in fractures aquifers. Drilling success rates, defined as the percentage of borehole yielding more than 1m³/h are commonly 100% in areas of known Kalahari aquifers, whilst the lowest success rates, of less than 25%, are common for fractured aquifers beneath thick unsaturated Kalahari layers⁶.

7.8 Fauna

The variety of wetland habitats, ranging from unvegetated open-water systems to wet grasslands, supports a diverse assemblage of flora and fauna. This area holds important numbers of rare and threatened bird species; it regularly holds more than 10,000 water birds of 84 species when wet. The most important species include breeding *Egretta vinaceigula*, and non-breeding *Grus carunculatus* and *Gallinago media*; the cranes occur in larger numbers than anywhere else in Namibia. These wetlands are also known to be important for rails (Rallidae), especially migratory Palearctic and intra-African crakes. The pans occasionally support thousands of both *Phoenicopterus ruber* and *P. minor* (probably on passage between Etosha and Makgadikgadi Pans in Botswana), as well as thousands of *Himantopus himantopus*. *Tringa glareola* and *Philomachus pugnax* may be particularly numerous, with over 1,000 birds present.

The surrounding grassveld holds Palearctic migrants, including large numbers of *Glareola nordmanni* and *Charadrius asiaticus*. Large mixed breeding colonies of *Podiceps nigricollis*, *Chlidonias hybridus*, *Fulica cristata*, *Porphyrio porphyrio*, *Gallinula angulata*, *Himantopus himantopus* and a handful of *Porzana pusilla* form in flooded grasslands around Nyae-Nyae. It is in the top 20 atlas squares for overall avian species richness in Namibia.⁷

Species	Current IUCN Red List Category	Season	Year(s) of estimate	Population estimate	IBA Criteria Triggered
Greater Flamingo <i>Phoenicopterus roseus</i>	LC	non-breeding	-	740-3,950 individuals	A4i
Lesser Flamingo <i>Phoeniconaias minor</i>	NT	non-breeding	-	2,000 individuals	A1
Wattled Crane <i>Bugeranus carunculatus</i>	VU	non-breeding	-	present	A1
Slaty Egret <i>Egretta vinaceigula</i>	VU	non-breeding	-	15-200 individuals	A1, A4i
<i>Himantopus himantopus</i>	NR	non-breeding	-	391-1,140 individuals	A4i
Caspian Plover <i>Charadrius asiaticus</i>	LC	winter	-	50-200 individuals	A4i

⁶ Christelis G. Struckmeier W. 2001. Groundwater in Namibia. Department of Water Affairs. Namibia

⁷ Bird Life International. <http://datazone.birdlife.org/site/factsheet/tsumkwe-pan-system-iba-namibia/details>

Great Snipe <i>Gallinago media</i>	NT	winter	-	present	A1
Black-winged Pratincole <i>Glareola nordmanni</i>	NT	winter	-	common	A1
Pallid Harrier <i>Circus macrourus</i>	NT	winter	-	present	A1
Bradfield's Hornbill <i>Lophoceros bradfieldi</i>	LC	resident	1998	present	A3
Dickinson's Kestrel <i>Falco dickinsoni</i>	LC	resident	1998	present	A3
Black-faced Babbler <i>Turdoides melanops</i>	LC	resident	1998	present	A3
Kurrichane Thrush <i>Turdus libonyana</i>	LC	resident	1998	present	A3
White-breasted Sunbird <i>Cinnyris talatala</i>	LC	resident	1998	present	A3

Note: This table presents the IBA criteria triggered and the species that triggered then at the time of assessment, the current IUCN Red List category may vary from that which was in place at that time.

Non-bird biodiversity: Among mammals, the temporary wetland system supports the near-endemic *Mastomys shortridgei* (a mouse species), and threatened species include the Cheeta (*Acinonyx jubatus*), Wild dog (*Lycaon pictus*) and the Elephant (*Loxodonta africana*). Other small antelope is also found in the area and include the Duiker (*Sylvicapra grimmia*), Steenbok (*Raphicerus campestris*) and larger animals such as the Eland (*Taurotragus oryx*), the Gemsbok (*Oryx gazelle*), Kudu (*Tragelaphus strepsiceros*) and Warthog (*Phacochoerus africanus*).

7.9 Flora



Figure 8: Typical vegetation cover of the project area

The largest part of the project is in the Kalahari Forest Savanna and Woodland vegetation classification. Taller trees are mainly confined to low sand ridges and are dominated by Silver Cluster Leaf (*Terminalia sericea*), Musheshe (*Burkea africana*), Muparara (*Peltophorum africanum*), Lavender-croton (*Croton gratissimus*), Kalahari-currant (*Rhus tenuinervis*), Camelthorn (*Acacia giraffe / erioloba*), Sand-veld acacia (*A. fleckii*), Kalahari acacia (*A. luederitzii*), Large-fruited combretum (*Cobretum zeyheri*), Kudu-bush (*C. apiculatum*), and Buffalo-thorn (*Ziziphus mucronate*).

A shrub savanna occurs on the gently rolling plains between the sand ridges and is mainly composed of Sickie bush (*Dichrostachys cinerea*), Velvet raison bush (*Grewia flava*), Sandpaper raison bush (*G. flavescens*), Black-thorn (*Acacia mellifera*), White bauhinia (*Bauhinia macrantha*), Large sour-plum (*Ximenia caffra*), and Fire-thorn corkwood (*Commiphora pyracanthoides*).

The grass cover includes Silky bushman grass (*Stipagrostis uniplumis*), Coppery three-awn (*Aristida meridionalis*), Tassel three-awn (*A. congesta*), Broom love grass (*Eragrostis pallens*), Saw-tooth love grass (*E. superba*), Spear grass (*Heteropogon contortus*), Broad-leaved turpentine grass (*Cymbopogon excavates*), and Common finger grass (*Digitaria eriantha*).



Northeast Namibia, the tree savanna becomes dominated by Zambezi teak (*Baikiaea plurijuga*), with varying proportions of Mopane (*Colophospermum mopane*) and False ash (*Burkea africana*). With fire protection, a dense shrub layer develops and Jasmine pea (*Baphia massaiensis*), *Bauhinia petersiana*, and *Paropsia brazzeana* are all common. The grass layer is sparse when the shrubby understory is well developed, but when it is more open, species such as *Aristida meridionalis*, *A. congesta*, *Eragrostis pallens*, and Lehmann lovegrass (*E.*

lehmanniana) are found. *Baikiaea plurijuga* (*Caesalpinaceae*) is fire sensitive and when fire damage is severe, it can disappear completely. *Baikiaea plurijuga* may have dominated a larger area of the ecoregion prior to the anthropogenic influences of fire, cultivation and woodcutting.⁸

7.10 Archaeological and Anthropological Resources

No archaeological or anthropological assessment was done. It is predicted that no archaeological or anthropological resources will be found in either the existing road reserve. Where new borrow pits are to be opened it is important to note that any archaeological or anthropological resources found should be reported to the Engineer for further actions.

7.11 Noise

Even though tourism plays an important economic role in this area it is anticipated that noise will not be an important aspect to consider due to the current movement of traffic on the gravel roads. No other source of noise is anticipated.

7.12 Visual Impacts

Visual impacts associated with a bitumen road was considered during the project phase and argued during the public participation meetings. It seems that there will not be a substantial difference in visual perception from the existing gravel road and the planned bitumen road. What is of importance is the aesthetic experience from the tourist when he/she is driving through the landscape.

⁸ Curtis and Mannheimer. 2005. Trees Atlas of Namibia. Windhoek. NBRI

7.13 Socio-economic background

Gam is situated in the Otjozondjupa Region which is one of the fourteen regions of Namibia. Its capital is Otjiwarongo. The region further contains the municipalities of Okahandja and Grootfontein and the towns Okakarara and Otavi.

Otjiwarongo, Grootfontein, Otavi, and Okahandja are linked by rail and by the main B1 and B8 trunk roads running from south to north. Communication systems in these areas are also of a high standard.

The farming activities of Okahandja and Otjiwarongo are homogenous as these parts are well known for cattle farming. The Otavi and Grootfontein districts, and to a lesser extent also Otjiwarongo, are the granary of Namibia. The region also has a great potential to establish industries connected with such farming activities and by-products of it. It further has the advantage of combining communal and commercial farming in the same region.

According to the 2012 Namibia Labour Force Survey, unemployment in the region is 25.3%. Otjozondjupa has 72 schools with a total of 36,284 pupils

Gam is situated in the Tsumkwe Constituency with a population of only 9 907 people living in a very large area⁹ of which 62% of the people in the constituency are living in traditional houses and only 21.3% are living in modern houses. 6.9% lives in improvised houses.

Tsumkwe constituency is in the north-east of Namibia. It is bordering the following areas, in the north; Kavango East and Kavango West, in the east; Botswana, in the south; Omaheke region and in the south-west; Okakarara constituency and in the west; Grootfontein constituency.

The western part of Tsumkwe constituency is communal and covers some commercial farms. The eastern part is totally communal.

Part of the constituency is behind the redline (cordon fence). Some of the commercial farms, although not behind the cordon fence, are under quarantine as well as part of the communal area, specifically Gam; it is behind the yellow line. Those under quarantine and behind yellow line can sell their domesticated animals (cattle) after spending 21 days in a quarantine camp.

Travelling to health, schools and other service facilities in the constituency specifically from the villages that are not in the main road is a real challenge to the residents of those villages. There are no public transports at all. People are largely relying on GRN vehicle for travelling.¹⁰

⁹ 2011 Population and Housing Census Otjozondjupa Region. Namibia Statistics Agency. Namibia

¹⁰ <https://www.gov.na/web/otjozondjuparc/tsumkwe-constituency>

8. ENVIRONMENTAL IMPACTS

The Scoping Report will look at the Construction and Operational Phases of the project to determine the significance of the expected environmental impacts associated with the upgrade of the existing gravel road to a low volume seal. The following activities are generally associated with the construction of a road. These activities are kept in mind during the environmental impact assessment process.

- **Camp site establishment**
 - Demarcation of the camp site
 - Protection of vegetation and natural features
 - Protection of fauna
 - Protection of cultural historical aspects
 - Topsoil conservation
 - De-bushing and de-stumping
 - Structures construction: bulk water, sewage, electricity and accommodation
 - Parking and other required demarcated areas

- **Site infrastructure**
 - Batching plants
 - Crusher plants
 - Sand washing plants
 - Nurseries
 - Construction of service, haul and access roads
 - Gates and fences

- **Site management**
 - Rubble and waste rock
 - Solid waste
 - Liquid waste
 - Hazardous waste
 - Pollution control
 - Implements and equipment
 - Blasting
 - Air quality
 - Noise control
 - Fire control
 - Health and Safety

- **Earthworks**
 - Prospecting boreholes and test pits
 - Excavations and trenches
 - Cut and fill
 - Shaping and trimming
 - Construction of pavement layers

- **Stockpiles, storage and handling**
 - Topsoil
 - Spoil
 - Vehicles and equipment
 - Fuel
 - Hazardous substances

8.1 Environmental Impact Assessment Process Methodology

One of the objectives of this study is to identify and quantify the potential positive and negative impacts which the proposed road will have on the receiving biophysical and socio-economic environment. A checklist is designed to help users identify the likely significant environmental effects of proposed projects during scoping. It is to be used in conjunction with the Checklist of Criteria for Evaluating the Significance of Impacts. There are two stages:

- **First**, identifying the potential impacts of projects;
- **Second** selecting those which are likely to be significant and therefore require most attention in the assessment.

A useful way of identifying the potential impacts of a project is to identify all the activities or sources of impact that could arise from construction, operation or decommissioning of the project, and to consider these alongside the characteristics of the project environment that could be affected, to identify where there could be interactions between them. The two parts of the Scoping Checklist have been developed to assist in this process.

Start with the checklist of questions set out below. Complete Column 2 by answering:

- yes - if the activity is likely to occur during implementation of the project;
- no - if it is not expected to occur;
- ? - if it is uncertain at this stage whether it will occur or not.

For each activity for which the answer in Column 2 is “Yes” or “?”, refer to the second part of the Scoping Checklist which lists characteristics of the project environment which could be affected, and identify any which could be affected by that activity. Information will be used about the surrounding environment in order to complete this stage. Note the characteristics of the project environment that could be affected, and the nature of the potential effects in Column 4.

Finally, use Checklist of Criteria for Evaluating the Significance of Impacts to help complete Column 5. This will identify those impacts which are expected to be significant. The questions are designed so that a “yes” answer will point towards a significant impact. It is often difficult to decide what is or is not significant but a useful simple check is to ask whether the effect is one that is of sufficient importance that it ought to be considered and have an influence on the development consent decision.

Table 3: Environmental Scoping Checklist

PART 1 OF THE SCOPING CHECKLIST: QUESTIONS ON PROJECT CHARACTERISTICS				
1. Will construction, operation or decommissioning of the Project involve actions that will cause physical changes in the locality (topography, land use, changes in water bodies, etc)?				
No.	Questions to be considered in the Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
1.1	Permanent or temporary change in land use, land cover or topography including increases in intensity of land use?	Yes	The borrow pit operations will temporarily alter the land use, land cover and, for the borrow pits - topography of the area.	Low significance because of possible mitigation measures that can be implemented. Rehabilitation of borrow pits normally return the land use to its original state.
1.2	Clearance of existing land, vegetation and buildings?	Yes	Clearing of vegetation for construction operations influencing the vegetation, soils and topography. It is very unlikely that any buildings will be cleared.	Clearing of vegetation is always regarded as significant when it comes to road construction. However, mitigation measures can reduce the significance of the impact.
1.3	Creation of new land uses?	No	The new road will be built mostly on the existing alignment.	Low significance.
1.4	Pre-construction investigations eg boreholes, soil testing?	Yes	Materials testing are required to obtain construction materials which will affect the topography and vegetation cover.	The areas of disturbance are very small. Holes are dug to excavate samples and closed after sampling. Low significance.
1.5	Construction works?	Yes	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	The existing alignment will be used therefore there are no significant impacts anticipated.
1.6	Demolition works?	Yes	The removal of old culverts and bridges.	Very low or significance due to the low pollution risk and can be successfully mitigated.
1.7	Temporary sites used for construction works or housing of construction workers?	Yes	A temporary construction camp will probably be constructed where water and waste management are the most important activities that need to be mitigated.	Should these activities not be managed, it might have a negative impact on the soils, water and health and safety of the contractor workers. No permanent changes to the area are predicted.
1.8	Above ground buildings, structures or earthworks including linear structures cut and fill or excavations?	Yes	The above ground earthworks will be regarded as primarily for the road construction.	It is anticipated that the impact will not be significant due to the flat topography of the existing road.
1.9	Underground works including mining or tunnelling?	No		

1.10	Reclamation works?	No		
1.11	Dredging?	No		
1.12	Coastal structures egg seawalls, piers?	No		
1.13	Offshore structures?	No		
1.14	Production and manufacturing processes?	No		
1.15	Facilities for storage of goods or materials?	Yes	The storage of machines, gravel, crushed stone, sand, cement, bitumen and bulk fuel.	The storage of goods or materials can be mitigated therefore limiting the significance.
1.16	Facilities for treatment or disposal of solid wastes or liquid effluents?	Yes	Sewage effluent from the camp sites need to be treated or disposed.	This might have a significant negative impact on Health / Safety as well as soils and water if not managed effectively.
1.17	Facilities for long term housing of operational workers?	No		
1.18	New road, rail or sea traffic during construction or operation?	Yes	Construction of a bypass and traffic increase due to movement of construction vehicles.	Medium significance due to the popular tourist route.
1.19	New road, rail, air, water borne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	The current alignment will be followed.	The significance will be low due to the width and current alignment to be used.
1.20	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	Yes	There will be temporary bypasses constructed.	The significance is likely to be low due to the temporary nature of the activities.
1.21	New or diverted transmission lines or pipelines?	No		
1.22	Impoundment, damming, culverts, realignment or other changes to the hydrology of watercourses or aquifers?	Yes	New culverts will be constructed.	Should proper planning and consultation with local communities be applied, negative impacts on the hydrology of the rivers and tributaries should be limited therefore reducing the significance. Construction of new culverts will have a positive impact.
1.23	Stream crossings?	No		

1.24	Abstraction or transfers of water from ground or surface waters?	Yes	Water will be extracted for the construction phase of the project.	Water from boreholes will be used and the significance will be medium due to the scarcity of available water.
1.25	Changes in water bodies or the land surface affecting drainage or run-off?	Yes	The existing road impact on the drainage patterns.	The significance will be Low positive due to improved capacity of the drainage structures
1.26	Transport of personnel or materials for construction, operation or commissioning?	Yes	Surface characteristics.	No significance.
1.27	Long term dismantling or decommissioning or restoration works?	No		
1.28	Ongoing activity during decommissioning which could have an impact on the environment?	No		
1.29	Influx of people to an area is either temporarily or permanently?	?	It is uncertain what the impact might have on the migration of people in the region.	The significance is estimated to be low, but possible.
1.30	Introduction of alien species?	No		
1.31	Loss of native species or genetic diversity?	No		
1.32	Any other actions?	No		

2. Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
2.1	Land especially undeveloped or agricultural land?	Yes	During construction, geological materials will be used for the filling and layer works. Soils will be affected and might therefore impact negatively on the agricultural / communal land.	The significance is low. The existing alignment will be followed with some small adjustments.
2.2	Water?	Yes	Water is used for domestic and construction purposes.	The available water will be used for construction. The significance will be medium due to the low volumes available.

3. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?				
No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
3.1	Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, and water supplies)?	Yes	Hydrocarbons always pose a risk to the environment.	Water and soils are normally affected by spillages of hydrocarbons. The significance might be medium without mitigation measures.
3.2	Will the project result in changes in occurrence of disease or affect disease vectors (eg insect or water borne diseases)?	No		
3.3	Will the project affect the welfare of people eg by changing living conditions?	?	There is always a risk of altered quality with regards to living conditions of the adjacent people and the environment. This is with reference to HIV/AIDS.	The significance of such risks can be mitigated, ensuring low impact significance.
3.4	Are there especially vulnerable groups of people who could be affected by the project eg hospital patients, the elderly?	Yes	The proposed route will impact positively on the vulnerable groups due to improved mobility network and increased safety.	Positive medium significance.
3.5	Any other causes?	No		
4. Will the Project produce solid wastes during construction or operation or decommissioning?				
No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
4.1	Spoil, overburden or mine wastes?	Yes	Spoils will be generated during construction affecting the aesthetics appeal of the area.	No. This activity can be mitigated very successfully. Low significance.
4.2	Municipal waste (household and or commercial wastes)?	Yes	Domestic waste will be generated.	Medium significance should it not be properly managed.
4.3	Hazardous or toxic wastes (including radioactive wastes)?	Yes	Used oils and old batteries.	Mitigation measures are important to manage the handling and disposal of used oils and old batteries.
4.4	Other industrial process wastes?	No		
4.5	Surplus product?	No		

4.6	Sewage sludge or other sludge from effluent treatment?	Yes	Sewage is produced at the construction camp.	Sewage is always a very important impact that might have a negative impact on soils, water and health and safety.
4.7	Construction or demolition wastes?	No		
4.8	Redundant machinery or equipment?	No		
4.9	Contaminated soils or other material?	Yes	There is always a possibility that contamination of soils can occur during operation due to spillage of oils / diesel.	No. The scale of contamination is very limited and can be mitigated.
4.10	Agricultural wastes?	No		
4.11	Any other solid wastes?	No		
5. Will the Project release pollutants or any hazardous, toxic or noxious substances to air?				
No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
5.1	Emissions from combustion of fossil fuels from stationary or mobile sources?	Yes	Gasses such as Nox and Sox are deposited in the air from the machines.	The quantity of these gasses will not impact significant negatively on the environment.
5.2	Emissions from production processes?	No		
5.3	Emissions from materials handling including storage or transport?	No		
5.4	Emissions from construction activities including plant and equipment?	Yes	Construction vehicles, power plants and the crusher plant will generate gaseous emissions.	The impacts might be low significant and can be mitigated.
5.5	Dust or odours from handling of materials including construction materials, sewage and waste?	Yes	Dust from material handling and transport.	Yes. Dust might be a nuisance to receptors.
5.6	Emissions from incineration of waste?	No		
5.7	Emissions from burning of waste in open air (eg slash material, construction debris)?	Yes	Burning of waste will negatively affect the air quality.	The significance will be low negative.
5.8	Emissions from any other sources?	No		

6. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?				
No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
6.1	From operation of equipment eg engines, ventilation plant, crushers?	Yes	The mining of borrow pits and production equipment produces noise and vibrations	No. The ambient receptors are minimal. The Health and Safety within close distance must be noted.
6.2	From industrial or similar processes?	No		
6.3	From construction or demolition?	Yes	Construction will produce noise.	Low significance due to low receptor density.
6.4	From blasting or piling?	No		
6.5	From construction or operational traffic?	Yes	The hauling trucks will produce noise and vibration.	No. The impact is very local and is not significant.
6.6	From lighting or cooling systems?	No		
6.7	From sources of electromagnetic radiation (consider effects on nearby sensitive equipment as well as people)?	No		
6.8	From any other sources?	No		
7. Will the Project lead to risks of contamination of land or water from releases of pollutants on the ground water into sewers, surface water, groundwater, coastal waters or the sea?				
No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
7.1	From handling, storage, use or spillage of hazardous or toxic materials?	Yes	Spillage of oils and other hydrocarbon may affect the water and soil.	With no mitigation the significance might be medium.
7.2	From discharge of sewage or other effluents (whether treated or untreated) to water or the land?	Yes	Effluent at the construction site might impact negatively on the surface water, soils and health and safety of the workforce.	Should the sewage not be properly managed the negative impact might be significant.

7.3	By deposition of pollutants emitted to air, onto the land or into water?	Yes	Gasses from the machines.	No. The volumes of emissions are limited.
7.4	From any other sources?	No		
7.5	Is there a risk of long term build-up of pollutants in the environment from these sources?	No		
8. Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?				
No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous or toxic substances?	No		
8.2	From events beyond the limits of normal environmental protection eg failure of pollution controls systems?	No		
8.3	From any other causes?	Yes	The health and safety of road users might be affected by construction vehicles.	Might be significant if proper road traffic management is not conducted during the construction phase.
8.4	Could the project be affected by natural disasters causing environmental damage (eg floods, earthquakes, landslip, etc)?	No		
9. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?				
No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
9.1	Changes in population size, age, structure, social groups etc?	No		
9.2	By resettlement of people or demolition of homes or communities or community facilities eg schools, hospitals, social facilities?	No		
9.3	Through in-migration of new residents or creation of new communities?	?	In-migration of people might be a possibility.	The significance is unsure.

9.4	By placing increased demands on local facilities or services eg housing, education, health?	No		
9.5	By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?	Yes	The local and larger community will benefit from the construction phase.	The significance might be positive medium due job creation and increased mobility.
9.6	Any other causes?	No		
10. Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality?				
No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
10.1	Will the project lead to pressure for consequential development which could have significant impact on the environment eg more housing, new roads, new supporting industries or utilities, etc?	Yes	New road will be constructed which will benefit the communities. Lower vehicle operating costs will contribute to the National economy.	The significance will be positive but the extent uncertain.
10.2	Will the project lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment eg: <ul style="list-style-type: none"> • supporting infrastructure • housing development • extractive industries • supply industries • other? 	Yes	Stimulating the tourism industry.	This might be a significant positive impact on the towns of Tsumkwe and Gam.
10.3	Will the project lead to after-use of the site which could have an impact on the environment?	No		
10.4	Will the project set a precedent for later developments?	?	Unlikely	
10.5	Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects?	No		

PART TWO OF THE SCOPING CHECKLIST: CHARACTERISTICS OF THE PROJECT ENVIRONMENT

For each project characteristic identified in Part 1 consider whether any of the following environmental components could be affected.

<p>Question - Are there features of the local environment on or around the Project location which could be affected by the Project?</p> <ul style="list-style-type: none"> • There are no areas protected by law in the vicinity of the proposed site. • The Naye Naye Conservancy areas could be regarded as sensitive with reference to bio-diversity or historic importance. • There is a low possibility of features of high historic or cultural importance. • Surface drainage patterns will be addressed through proper engineering design.
<p>Question - Is the Project in a location where it is likely to be highly visible to many people? This road is not used extensively; therefore, the location is not highly visible to many people.</p>
<p>Question - Is the Project located in a previously undeveloped area where there will be loss of Greenfield land? No, the road will be constructed on the existing alignment.</p>
<p>Question - Are there existing land uses on or around the Project location which could be affected by the Project? There will be one borrow pit that will be opened but will not affect the existing land uses significantly.</p>
<p>Question - Are there any plans for future land uses on or around the location which could be affected by the Project? No. The area will probably remain agricultural / communal.</p>
<p>Question - Are there any areas on or around the location which are densely populated or built-up, which could be affected by the Project? There are no densely populated areas around the project, only agricultural activities and dwellings found at Gam. .</p>
<p>Question - Are there any areas on or around the location which are occupied by sensitive land uses which could be affected by the Project? No.</p>
<p>Question - Are there any areas on or around the location which contain important, high quality or scarce resources which could be affected by the Project? There are no scarce resources found around the project that could be influenced by the construction or operational phases of these projects, but there are some flora species (trees) that are protected by Forestry Legislation. There are also some protected animal species that will be encountered during construction and operational phases.</p>
<p>Question - Are there any areas on or around the location of the Project which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project? No. The area has been subject to agricultural and semi-urban activities.</p>
<p>Question - Is the Project location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems? No. The area is very flat with limited floods, erosion or impacts on the climatic conditions.</p>
<p>Question - Is the Project likely to affect the physical condition of any environmental media? No, the proposed project will be constructed on the existing alignment.</p>

Question - Are releases from the Project likely to have effects on the quality of any environmental media?

- The air quality might deteriorate due to dust generation during construction but will improve during operation.
- The quality of soil might deteriorate without proper management.
- Acidification of soils or waters will probably not occur.
- There will be some noise generated during the construction and operational phase of the road but will be limited to the site. Noise levels will decrease during the operation phase of the project.
- The air quality will increase should the road be upgraded to bitumen standard.

Question - Is the Project likely to affect the availability or scarcity of any resources either locally or globally?

- The project will use fossil fuels in liquid (diesel).
- Water will be used for dust suppression, construction and domestic use.
- The quarrying activity extracts geological materials on a non-renewable basis.

Question - Is the Project likely to affect human or community health or welfare?

- The quality of air will be affected due to construction activities and hauling. Even though this is the case, human health might not be problematic.
- No mortality or morbidity might be experienced by human receptors.
- The project will have a positive impact on the social economic welfare of the region.

In the Scoping checklist, the significance must be indicated. To facilitate this procedure, the following questions were considered during the rating:

Questions that were considered to determine significance:

1. Will there be a large change in environmental conditions?
2. Will new features be out-of-scale with the existing environment?
3. Will the effect be unusual in the area or particularly complex?
4. Will the effect extend over a large area?
5. Will there be any potential for trans frontier impact?
6. Will many people be affected?
7. Will many receptors of other types (fauna and flora, businesses, facilities) be affected?
8. Will valuable or scarce features or resources be affected?
9. Is there a risk that environmental standards will be breached?
10. Is there a risk that protected sites, areas, features will be affected?
11. Is there a high probability of the effect occurring?
12. Will the effect continue for a long time?
13. Will the effect be permanent rather than temporary?
14. Will the impact be continuous rather than intermittent?
15. If it is intermittent will it be frequent rather than rare?
16. Will the impact be irreversible?
17. Will it be difficult to avoid, or reduce or repair or compensate for the effect?

8.2 Environmental Impact Assessment Summary

The following environmental impacts were identified during the assessment procedure as described above. The impacts are classified as either positive or negative and the significance ratings as low, medium and high.

Activity	Aspect / Impact	Positive / Negative	Significance
Land use / topography, and land use cover.	The quarry operations will permanently alter the land use, land cover and, for the borrow pits - topography of the area.	Negative	Low
	Areas zoned as undetermined or agricultural will change to transport (land use).	Negative	Low
Clearance of existing land, vegetation and buildings.	Clearing of vegetation for construction operations influencing the vegetation, soils and topography.	Negative	Low
Creation of new land uses.	The existing land use will change from agricultural to road (land use).	Negative	Low
Pre-construction investigations egg boreholes, soil testing?	Materials testing are required to obtain construction materials which will affect the topography and vegetation cover.	Negative	Low
Construction activities.	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	Negative	Low
Demolition works?	The possible removal of old culverts and bridges.	Negative	Low
Temporary sites used for construction works or housing of construction workers?	A temporary construction camp will probably be constructed where water and waste management are the most important activities that need to be mitigated.	Negative	Low
Above ground buildings, structures or earthworks including linear structures cut and fill or excavations.	The above ground earthworks will be regarded as primarily for the road construction. Permanent changes will take place (land use).	Negative	Low
Facilities for storage of goods or materials.	Pollution of soils and water.	Negative	Medium
Facilities for treatment or disposal of solid wastes or liquid effluents?	Sewage effluent from the camp sites need to be treated or disposed.	Negative	Medium
New road, rail or sea traffic during construction or operation?	Limited traffic increase due to movement of construction vehicles.	Negative	Low
Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	There will be temporary bypasses constructed.	Negative	Low

Impoundment, damming, culverts, realignment or other changes to the hydrology of watercourses or aquifers.	Water balancing is an important aspect to be evaluated. Improving the culverts on the road will be positive.	Positive	Low
Abstraction or transfers of water from ground or surface waters?	Water will be extracted for the construction phase of the project.	Negative	Medium
Changes in water bodies or the land surface affecting drainage or run-off?	Drainage will improve due to the increased structures (culverts) and widening of the bridges.	Positive	Medium
Influx of people to an area in either temporarily or permanently	Migration of people might impact on the socio-economic structure of the area. The risk of HIV/AIDS may increase due to the influx.	Negative	Low
Loss of native species or genetic diversity?	Surface disturbances always impact on the biodiversity of an area.	Negative	Low
Resources such as land and water.	Very limited agricultural land will be affected due to the construction of the road.	Negative	Low
	Water is used for domestic and construction purposes.	Negative	Medium
Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, and water supplies)?	Hydrocarbons always pose a risk to the environment.	Negative	Medium
Will the project affect the welfare of people eg by changing living conditions?	The proposed route will impact positively on the vulnerable groups due to improved mobility network.	Positive	Medium
Spoil, overburden or mine wastes?	Spoils will be generated during construction affecting the aesthetics appeal of the area.	Negative	Low
Pollution on site (domestic and construction waste).	Pollution of the natural environment (soil and water).	Negative	Medium
Sewage sludge or other sludge from effluent treatment?	Sewage is produced at the construction camp.	Negative	Medium
Contaminated soils or other material.	There is always a possibility that contamination of soils can occur during operation due to spillage of oils / diesel.	Negative	Low
Emissions from combustion of fossil fuels from stationary or mobile sources.	Gasses such as Nox and Sox are deposited in the air from the machines.	Negative	Low
	The movement from vehicles will generate noise, dust and gaseous emissions.	Negative	Low
Will the project cause noise and vibration from blasting?	Blasting might be conducted which will impact on existing water sources, houses and other receptors in the area.	Negative	Low

Emissions from burning of waste in open air (eg slash material, construction debris)?	Burning of waste will negatively affect the air quality.	Negative	Low
By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?	The local community will benefit from the construction phase through additional employment opportunities.	Positive	Medium
Will the project lead to pressure for consequential development which could have significant impact on the environment eg more housing, new roads, new supporting industries or utilities, etc?	New road will be constructed which will benefit the communities by improving access to schools, clinics and churches.	Positive	Medium
	New road will be constructed which will benefit the communities. Lower vehicle operating costs will contribute to the National economy.	Positive	Medium
Will the project lead to development	Access improvement to facilities in the region will benefit the local and regional communities.	Positive	Medium

8.3 Public Participation Process

A comprehensive Public Participation process was conducted for this project which are in guidance with the requirements of the Environmental Management Act no.7 of 2007.


The methodology followed during the public participation process was to make use of existing communications between Element Consulting Engineers and the relevant stakeholders and interested and affected parties, as well as personal interviews conducted by Enviro Management Consultants Namibia.

The objectives of the meetings were to inform the various Stakeholders and the general Public about the project and to receive any comments or concerns with regards to the design of the proposed route, the natural environment that will be affected by the project as well as the social impact this project might have.

The project was advertised in both the Republikein and the Namibian on two separate occasions: 10th August 2021 in the Republikein, Daily Sun and Allgemeine Zeitung, and; 17th August 2021 in the Republikein, Daily Sun and Allgemeine Zeitung.

Please find attached the Advertisement that was placed in the various newspapers:

PROOF OF PLACEMENT OF NOTICES




DIENSTAG, 10. AUGUST 2021

Allgemeine Zeitung

SEIT 1916 105. JAHRGANG, NUMMER 151 ISSN 1560-9421

7.00 NS

AKTUELL MITTENDRIN FÜR DICH




9 771560 942000

FIC-Behörde
Das FIC berichtet, dass es trotz Corona-Erfolge im Kampf gegen Geldwäsche und Terror-Finanzierung verzeichnen konnte. *Seite 2*

Stadtrat
Der Swakopmunder Stadtrat greift weiter gegen Grundstücksentwickler durch, die ihre Verpflichtungen nicht erfüllen. *Seite 3*


NMH-Beilage
Das Bildungsprogramm der NMH beginnt wieder. Klasse 2: Woche 19 & 20-Beilagen sind nur bei den Straßenverkäufern erhältlich.




IMPFZAHLEN
PRO REGION 60% DER EINWOHNER



UMGESIEDELTE GIRAFFEN IM NORDWESTEN SIND WOHLAUF

Die vor einem Jahr umgesiedelten Giraffen in dem Doro Invas Hegegebiet im Nordwesten Namibias haben sich laut der Giraffe Conservation Foundation (GCF) gut eingelebt. Im



GIZ – StartUp Namibia

INVITATION FOR EXPRESSION OF INTEREST (EOI)

Sales Consultants for the DUBAI EXPO 2021/22

Namibia will be one of the 192 exhibitors and participants at the Expo 2021/22 Dubai. The Namibian Pavilion expo theme is "Preserving Natural Treasures for Future Generations: The Opportunity of a Lifetime". NIPDB & StartUp Namibia have partnered up to avoer opportunities to young Namibian graduates with an entrepreneurial mindset who thrive to start their own business in the future. Sales is one of the most important core competencies when starting a new business.

We are inviting young entrepreneurial Namibian graduates with viable business ideas to join Team Namibia as Sales Consultants for the Namibian Pavilion at the Dubai World Expo 2021/22 for 8 months starting in September 2021.

The selected Sales Consultants will sell Namibian products at the Dubai World Expo 2021/22 to gain sales experience in a highly competitive and international environment, to master this skill for starting a business at a later stage.

The assignment will NOT be remunerated. GIZ StartUp Namibia and NIPDB will cover the cost for flights, accommodation, per diems, insurance, and visas.

The interested candidates must fulfil the following eligibility criteria:

- Graduated in the last 24 months from an institution of Higher Learning;
- NQF level 7 Degree for Tertiary Institution, or
- NQF level 3 for Vocational Institution
- Entrepreneurial spirit, past experience with starting a business an added advantage
- Strong interest and talent in Sales
- Valid passport until 31 October 2022
- Fully vaccinated or have received 1st dose by no later than 15 August 2021 (2nd dose could be administered in Dubai)

For more information, please request Terms of Reference.




This EOI is open to Namibian Nationals only

EOI documents to be requested via email to: giz-namibia@giz.de

Please quote ref. no. "DUBAI EXPO 2021/22" as your reference in the email subject line.

Deadline for submission: 15 August 2021 at 16h00

10 Market Watch TUESDAY 10 AUGUST 2021

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT



Enviro Management Consultants Namibia is appointed by Element Consulting Engineers (Pty) Ltd on behalf of the Roads Authority of Namibia to conduct an Environmental Impact Assessment and develop an Environmental Management Plan as required by the Environmental Management Act No 7 (2007) and the associated Environmental Regulations for the following project:


Low Volume Seal Construction of 6km of Road in Gam as Part of the Low Volume Seal Program

All Interested and Affected Parties (I&APs) are hereby invited to register in terms of the environmental assessment process and to give input, comments or opinions regarding the intended road upgrade before the 31st of August 2021.

For further information, and to register as an I&AP please contact:

Enviro Management Consultants Namibia
Contact: Ms. Maïke Preisert or Mr. Rian du Toit
Fax: 088 628968
Email: enviromanagement@gmail.com







Closing Date
for Applications
Monday, 23 August 2021

FOR MORE INFORMATION PLEASE VISIT:



<https://www.sanlam.com/namibia/about/careeropportunities/Pages/careeropportunities.aspx>

NAMIBIAN CITIZENS ONLY

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Personal Lines Claims Negotiator | OMSIC | Windhoek
Closing Date: 17 August 2021

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https://oldmutual.wd3.myworkdayjobs.com/en-US/Old_Mutual_Careers

vacancy

Namib Mills (Pty) Ltd, an equal opportunity employer invites interested and qualified candidates looking for an exiting career in the FMCG industry to apply for the following positions in Windhoek:

- Payroll Administrator (Windhoek)

Please visit <http://www.namibmills.com/> for a detailed outline of the relevant advertisement. A detailed CV with supporting documents should be forwarded to hr3@namibmills.com.na (not larger than 2MB). Only shortlisted candidates will be contacted and no documents will be returned.

Sun

Tells it all

NEWS
Genocide deal on ice

SPORT
Hopa in a diehtraught netball fraternity

3

8

Grade 2 Week 19 and 20



Being Safe

STREET SALES ONLY

TUESDAY
10 AUGUST 2021

EDITION 141 NUMBER 103

NS\$


9 771997 487600

VACCINATION STATISTICS

• DAVIDS SUSPENDED AFTER IGNORING CALL TO RESIGN

Defiant IPC councillor threatens to sue

Recently-deceased man had death certificate



GIZ – StartUp Namibia

INVITATION FOR EXPRESSION OF INTEREST (EOI)

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- Entrepreneurial spirit, past experience with starting a business an added advantage
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Republikein Sun Allgemeine Zeitung

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All Interested and Affected Parties (I&APs) are hereby invited to register in terms of the environmental assessment process and to give input, comments or opinions regarding the intended road upgrade before the 31st of August 2021.

For further information, and to register as an I&AP please contact:

Enviro Management Consultants Namibia
Contact: Ms. Malke Prickett or Mr. Rian du Toit
Env: 085 6209959
Email: enviromanagement@gmail.com



VACANCY

Financial Accountant: Control Accounts Closing Date for Applications: Monday, 23 August 2021

FOR MORE INFORMATION PLEASE VISIT:
<https://www.sanlam.com/namibia/about/careeropportunities/Pages/current-opportunities.aspx>

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Closing Date: 17 August 2021

Applications to be submitted at
https://oldmutual.wd3.myworkdayjobs.com/en-US/Old_Mutual_Careers

vacancy



'ENT EN KRY KLAAR'
 Mnr. Kokkie Kok (82) het gister sy tweede dosis van die AstraZeneca-entstof by die NG Kerk Eros ontvang. "Ek is bly..."

Krematorium werk onverpoos

› **Henriette Lamrecht**
 "Dis die mooiste mense met die mooiste harte en gesindhede. As almal in Namibië maar so was..."
 Dit was die kommentaar van 'n begrafnisondernemer gister oor personeel by die krematorium wat volgens haar "sewe dae per week" werk om die agterstand in die verassing van liggame uit die weg te probeer ruim. Die begrafnisondernemer wat self 11 liggame het wat op verassing weg en waarvan sommige reeds in Junie gesterf het, het gesê "ek haal my hoed af vir..."

GIZ – StartUp Namibia
INVITATION FOR EXPRESSION OF INTEREST (EOI)
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- NQF level 8 for Vocational institution
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Market Watch TUESDAY 10 AUGUST 2021
 Republiken Sun Willems-Week

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Enviro Management Consultants Namibia
 Contact: Mr. Meko Phokett or Mr. Rian du Toit
 Fax: 088 620958
 Email: enviromanagement@gmail.com

VACANCY
Financial Accountant: Control Accounts
 Closing Date for Applications: Monday, 23 August 2021

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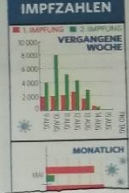
AKTUELLE MITTE NDRIN FÜR DICH

9 775 604 2000

Staat verklagt
Die mutmaßliche Körperliche und verbale Attacke eines Zivilisten durch einen Polizisten hat es ins Obergericht geschafft. Seite 2

Prognose
Die Zentralbank erwartet eine Erholung der namibischen Wirtschaft. Die Pandemie könnte dies jedoch beeinträchtigen. Seite 3

NMH-Beilage
Das Bildungsprogramm der NMH läuft wieder. Klasse 2, Woche 21 & 22-Beilagen sind nun bei den Straßenverkäufern erhältlich.



Angolanische Flüchtlinge im Norden des Landes



The use of the dollar tamed hyperinflation Dollar dominance back on agenda in DRC

Strengthening the franc would improve the public's purchasing power and help to accelerate the de-dollarisation process.

ANNIE THOMAS

DRCongo has revived a long-standing dream of promoting the national currency and widening the dollar's regime control over

key economic levers. The Democratic Republic of Congo's economy became informally "dollarised" several decades ago under the dictatorship of Marshal Mobutu Sese Seko, whose chaotic rule bred four-digit inflation.

The dollar is used in major contracts, business transactions and the bank accounts of the well-heeled, and even accepted by shopkeepers and street machines.

The US dollar is the common currency, just as English is the common

language," said a vendor in "Le Chateau", the nickname for a small street in Kinshasa's business district studded with the umbrellas of money-changers.

The use of the dollar tamed hyperinflation, but also sapped the government's tools to shape fiscal policy and spending, which are the basic tools of economic management.

Foreign currencies are believed to account for more than 90% of the money supply in this sprawling country of more than 23 million



NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT

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Low Volume Seal Construction of 6km of Road in Cam as Part of the Low Volume Seal Program

All Interested and Affected Parties (I/A/Ps) are hereby invited to register in terms of the environmental assessment process and to give input, comments or opinions regarding the intended road upgrade before the 29th of August 2021.

For further information and to register as an I/A/P please contact:

Enviro Management Consultants Namibia
Contact: Mr. Hennie Pretorius or Mr. Alan du Toit
Fax: 088 6203968
Email: enviro@emcnamibia.com

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Deliveries to schools (All languages: English, Afrikaans, Oshilwanyama, Ojijherero, Oshindonga, Rukwangali, Rumanya, Thimbukushu, Silizil & Khoekhoegowab)

BOOK 4	16 AUG	17 AUG	18 AUG	19 AUG	GRADE 3	WEEK 19 & 20
					GRADE 2	WEEK 19 & 20
					GRADE 1	WEEK 15 & 16
					PRE-PRIMARY	WEEK 17 & 18

BOOK 5

INSERT SCHEDULE - FREE SALES ONLY
16 AUG UNTIL 19 AUG

16 AUG: WEEK 21 & 22	REPUBLIC OF NAMIBIA SUN & ALLGEMEINE ZEITUNG	GRADE 3 AFR
17 AUG: WEEK 21 & 22	REPUBLIC OF NAMIBIA SUN & ALLGEMEINE ZEITUNG	GRADE 2 AFR
18 AUG: WEEK 17 & 18	REPUBLIC OF NAMIBIA SUN & ALLGEMEINE ZEITUNG	GRADE 1 ENG/AFR
19 AUG: WEEK 19 & 20	REPUBLIC OF NAMIBIA SUN & ALLGEMEINE ZEITUNG	PRE-PRIMARY ENG/AFR

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Subscribe to our Telegram channel

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VACANCY

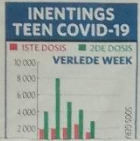
The Development Bank of Namibia has the following vacancy:

COMPLIANCE OFFICER

Find more information at <https://www.dbn.com.na/careers>

The closing date for applications is Friday, 30 August 2021.

Development Bank of Namibia
Expert man.



Meer as 94 000 ton plaaslik geproduseer

Grootste mielie-oes ooit

Drie maande sedert die begin van die miljoen-negociasie buik

The use of the dollar tamed hyperinflation

Dollar dominance back on agenda in DRC

Strengthening the franc would improve the public's purchasing power and help to accelerate the de-dollarisation process.

ANNIE THOMAS

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Foreign currencies are believed to account for more than 90% of the money supply in this sprawling country of more than 0.7 million

square kilometres.

Stable currency

Now, the authorities are once again mulling how to boost the standing of the Congolese franc, although thinking is still at an early stage. Strengthening the franc would improve the public's purchasing power and help to "accelerate the de-dollarisation process," the report said.

The way of achieving this would be through "a series of measures aimed at using the Congolese franc as the

unit of account for all transactions," the report said.

Measures forced through at the end of the 1990s fell short because of a recession linked to war in the east of the country and a flourishing black market in foreign exchange.

Conflict in the east, pitting armed groups against each other and the army, persists to this day. Instability was launched in 2012, when the government had high hopes for growth and new high decimation bills in Congolese francs.



A vendor at a market in Kinshasa. PHOTO THE ECONOMIST

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Contact: Ms. Naisie Prockett or Mr. Brian du Toit
Fax: 088 620968
Email: enviromanagement@gmail.com

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We are continuing with school deliveries of all your favourite books for Term 2!

Deliveries to schools (All languages: English, Afrikaans, Oshikwanyama, Oshihenero, Oshindonga, Rukwangali, Rumanyo, Thimbukushu, Silozl & Khoekhoegowab)

16 AUG: WEEK 21 & 22	GRADE 3	WEEK 19 & 20
17 AUG: WEEK 23 & 24	GRADE 2	WEEK 19 & 20
18 AUG: WEEK 25 & 26	GRADE 1	WEEK 15 & 16
19 AUG: WEEK 27 & 28	PRE-PRIMARY	WEEK 17 & 18

BOOK 4

BOOK 5

INSERT SCHEDULE - STREET SALES ONLY
16 AUG UNTIL 19 AUG

16 AUG: WEEK 21 & 22	REPUBLICAIN	GRADE 3 AFR
	NAMBIAAN SUN & ALGEMEINE ZEITUNG	GRADE 3 ENG
17 AUG: WEEK 23 & 24	REPUBLICAIN	GRADE 2 AFR
	NAMBIAAN SUN & ALGEMEINE ZEITUNG	GRADE 2 ENG
18 AUG: WEEK 25 & 26	REPUBLICAIN	GRADE 1 ENG/AFR
	NAMBIAAN SUN & ALGEMEINE ZEITUNG	GRADE 1 ENG/AFR
19 AUG: WEEK 27 & 28	REPUBLICAIN	PRE-PRIMARY ENG/AFR
	NAMBIAAN SUN & ALGEMEINE ZEITUNG	PRE-PRIMARY ENG/AFR

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VACANCY

The Development Bank of Namibia has the following vacancy:

COMPLIANCE OFFICER

Find more information at <https://www.dbn.com.na/careers>

The closing date for applications is Friday, 20 August 2021.

Development Bank of Namibia
Expect more.

Namibian Sun

Tells it all

NEWS

Electricity distributors eat into municipal revenues **3**

No medal predictions yet - Botha **8**

Goal 2: Work, 21 and 22

STREET SALES ONLY

TUESDAY 17 AUGUST 2021

CERTIFICATION NUMBER: CS 9 17 1997 48 6600

VACCINATION STATISTICS

1ST DOSE 19 000

2ND DOSE LAST WEEK

BOSS' PROPOSED REMUNERATION CUT BY N\$700 000

Cabinet slashes proposed NamRA



The use of the dollar tamed hyperinflation

Dollar dominance back on agenda in DRC

Strengthening the franc would improve the public's purchasing power and help to accelerate the de-dollarisation process.

ANNIE THOMAS

DRCongo has revived a long-standing dream of promoting the national currency and sidelining the dollar to regain control over

key economic levers. The Democratic Republic of Congo's economy became informally "dollarised" several decades ago under the dictatorship of Mobutu Sese Seko, whose chaotic rule bred hyperinflation. The dollar is used in major contracts, business transactions and the bank accounts of the well-heeled, and even accepted by shopkeepers and in cash machines.

The US dollar is the common currency, just as English is the common language," said a vendor in "Le Chateau", the nickname for a small street in Kinshasa's business district, studied with the umbrellas of money-changers. The use of the dollar tamed hyperinflation, but also allowed the government's control over fiscal policy and spending, which are the basic tools of economic management.

Foreign currencies are believed to account for more than 90% of the money supply in this sprawling country of more than 2.8 million square kilometres. Now, the authorities are once again mulling how to boost the standing of the Congolese franc, although thinking is still at an early stage. Strengthening the franc would improve the public's purchasing power and help to "accelerate the de-dollarisation process," the report said.

Misères forced through at the end of the 1990s led to a sharp decline in a recession linked to war in the east of the country and a flourishing black market in foreign exchange. Conflict in the east, pitting armed groups against each other and the army, persists to this day. Aushabizi was launched in 2012, when the government had high hopes for growth and new high-denomination bills of Congolese francs.

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT

Enviro Management Consultants Namibia is appointed by Element Consulting Engineers (Pty) Ltd on behalf of the Roads Authority of Namibia to conduct an Environmental Impact Assessment and develop an Environmental Management Plan as required by the Environmental Management Act No. 7 (2007) and the associated Environmental Regulations for the following project:

Low Volume Seal Construction of 6km of Road in Cam as Part of the Low Volume Seal Program

All interested and Affected Parties (ISAPs) are hereby invited to register in terms of the environmental assessment process and to give input, comments or opinions regarding the intended road upgrade before the 31st of August 2021.

For further information, and to register as an ISAP please contact:

Enviro Management Consultants Namibia
Contact: Ms. Waive Prossert or Mr. Dan Du Toit
Fax: 088 626908
Email: enviro@enviromanagement.com



A vendor at a market in Kinshasa. PHOTO: THE ECONOMIST

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Development Bank of Namibia
Expect more.

A public meeting was held on the 5th of August 2021 at Gam where the details of the proposed route were given and inputs from the attendees were recorded. Attached is the attendance register from the stakeholders that attended the meeting:




ATTENDANCE REGISTER

VENUE: Gam Conservancy Office

DATE: 05/08/2021

PROJECT: Low Volume Seal in Gam (M113) Realignment + Resurfacing

NAME	EMAIL	CELL NR	SIGNATURE
Hans U. Kandji		0813311829	<i>[Signature]</i>
Linda EN AILEKA	linda@conservancy.gov.na	0813610028	<i>[Signature]</i>
Frisco Tuabuyu	N/A	0816587459	<i>[Signature]</i>
Hon Johannes Hausiku	JHausiku50@gmail.com	0811412728	<i>[Signature]</i>
JACOB MAEKOPA		0818082698	<i>[Signature]</i>
Josiah K. Mupfema		0813983336	<i>[Signature]</i>
CHERY MUKTJE TSEH	chrismuaje.com	0811476999	<i>[Signature]</i>
Lukas Kandji		0817537823	<i>[Signature]</i>
Idah Moskopo	N/A	0813233373	<i>[Signature]</i>
KAVELITHA THHPPH	Kthapa@gmail.com	0816624493	<i>[Signature]</i>
Kubata Mahoro	Mapengau@thh@gmail.com	0818702341	<i>[Signature]</i>
ZACHARIAH TIENZO	zgerongo@gmail.com	0816237766	<i>[Signature]</i>
natika	Katjivela	0813579839	<i>[Signature]</i>
Tuabuyu Tuapuuvi	tuabuyu@conservancy.gov.na	0813015109	<i>[Signature]</i>
Kapamata Felix T	fxnna@gmail.com	0814535365	<i>[Signature]</i>
Mujinga HIRI	hmujinga@gmail.com	0813405624	<i>[Signature]</i>




ATTENDANCE REGISTER

VENUE: Gam Conservancy Office

DATE: 05/08/2021

PROJECT: Low Volume Seal in Gam (M113) Realignment + Resurfacing

NAME	EMAIL	CELL NR	SIGNATURE
ELLEN Kandji	N/A	08170510129	<i>[Signature]</i>
Paulina Tjesa	N/A	0813598613	<i>[Signature]</i>
Kahange Uzespa	N/A	0816359925	<i>[Signature]</i>
Konnie U Kandji	KKandji@gmail.com	0818410104	<i>[Signature]</i>
Moses Swallow Mbaha	Mbaha@gmail.com	0815778520	<i>[Signature]</i>
KEHARANA TUAKARANANG	KTUAKARANANG@gmail.com	0817631115	<i>[Signature]</i>
Sabrey Uelupindwi Ndeze	N/A	0813250666	<i>[Signature]</i>
MIBIMBO MIBPI	N/A	08120809914	<i>[Signature]</i>
Mame Zebivela	N/A	0813621244	<i>[Signature]</i>
Ramwika D. Mupfema	N/A	0812525125	<i>[Signature]</i>
Aron Kungu	N/A	0816568847	<i>[Signature]</i>
Kanhambange Kehwara	N/A	0814076774	<i>[Signature]</i>
Uenwukwi MPAI	N/A	0813722118	<i>[Signature]</i>
Hizuu Katujei	N/A	0815752893	<i>[Signature]</i>
Edward Mbaha	Edwardmbaha@gmail.com	0815579650	<i>[Signature]</i>

PUBLIC PARTICIPATION PICTURES:



The following summary of comments were received during the public participation meeting:

The full minutes of the meeting is attached in APPENDIX D.

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
1	Your duty concerning the environment, what type of duties are you focussing on to tell the community that this environment is suitable for this project?	Chief Hans Kandji	The focus is to make sure that pollution and other control measures are in place, no fuel spillage, bitumen etc. We write an Environmental Management Plan (EMP) that includes borrow pit rehabilitation (left in a safe and proper way), how the contractor camp needs to be managed, and addresses environmental and socio-economic shortcomings all of which the contractor needs to adhere to. Our involvement is not once off, we will do site visits every 2 or 3 months and ensure that the project is managed correctly and the contractor adheres to the EMP. We need to make sure that the road is constructed without damaging your natural environment.	Rian du Toit
2	You mentioned that you must apply for permission from MEFT? What permission is that?	Chief Jakob Maekopo	Yes, we need to obtain permission. Due to covid restrictions and money availability this process was delayed.	Rian du Toit
3	Is there a plan with regards to the feeder roads?	Principal Chris Muatjetjewa	There is a plan available, we will ensure that you get a plan.	Hentie Kotze
4	The auction pens are not accessible. Can additional roads be looked at?	Kaveuana Tjihapa	A written request must be sent to the client, they will then decide.	Hentie Kotze
5	How does payment for gravel and water work?	Lukas Kandji	Obtaining gravel and water for these projects is regulated by the law. Gravel – the top layer of material belongs to the landowner, below that everything is owned by the government, except if the landowner has applied for a mining license. The Road Ordinance Section 30 states that all material except from a commercial source can be obtained from anywhere for the construction of roads. The Minerals Act Schedule 1 states that any material used for the construction of a road may not be charged for unless the landowner has obtained a mineral license as stipulated under Schedule 2 of the Minerals Act. Sometimes	Rian du Toit

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
			<p>material needs to be obtained from a commercial source such as Henning Crusher because it needs a specific specification. Material used for the construction of roads is not regarded a mineral, except if you want to sell it and for that you need a mining license and not just an environmental clearance certificate.</p>	
6	<p>The borrow pits here have been preserved by the conservancy. Does it mean you have to get permission from the conservancy to use them? They belong to the conservancy.</p>	Chief Hans Kandji	<p>Top layer of material belongs to landowner, underneath everything belongs to the government. If agricultural fields, buildings, trees etc are destroyed because of the location of a borrow pit, the landowner will be compensated accordingly.</p> <p>According to the Road Ordinance 17 of 1972 – Obtaining Materials:</p> <p>For the purpose of the construction, maintenance or repair of a proclaimed road the Executive Committee may through its representatives, officers or contractors enter upon any land with any vehicle, tool, material or animal and after the expiry of a period of fourteen days after a written notice of its intention to do so -</p> <p>(i) has been handed to the owner, lessee or occupier of such land; or</p> <p>(ii) has been sent to the last-known address of such owner, lessee or occupier by registered post; or</p> <p>(iii) has been left at a conspicuous place on such land,</p> <p>[The word “conspicuous” is misspelt in the Official Gazette, as reproduced above.]</p> <p>it may without any compensation to the owner, lessee or occupier of the land, remove any material which may be necessary for such construction, maintenance or repair from such land or process it on such land and thereafter remove it therefrom and for this purpose it may build and maintain any access roads which it may consider necessary: Provided that -</p> <p>(a) nothing shall be removed from any garden or other land usually cultivated, nor within two hundred and fifty metres of any house nor within fifty metres of any kraal;</p> <p>(b) every excavation, including an excavation for a sample and an experimental pit, shall as soon as possible be filled up or fenced off or shall otherwise be made safe for human beings and animals again to the satisfaction of the owner, lessee</p>	<p>Rian du Toit</p> <p>Hentie Kotze</p>

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
			<p>or occupier of such land or as the Executive Committee directs; [paragraph (b) substituted by Ord. 10 of 1974]</p> <p>(c) any road provided for this purpose shall be ripped up in such a way that it cannot be washed away should the owner, lessee or occupier so desire;</p> <p>(d) the Executive Committee, its representatives, officers or contractors shall, in exercising these powers take every care to prevent damage, injury, loss or inconvenience to the owner, lessee or occupier concerned:</p>	
			<p>Henning Crusher at Tsumeb are not charging money for the material, they are charging for the process of excavating and crushing the material, but not the material. The same goes for the water from Namwater, water under the ground belongs to the government people are charged for the process to obtain water, pumping the water, constructing pipelines and building infrastructure.</p> <p>Two weeks ago a meeting was held between the Governor, the Councillor, the contractor and a representative from Rural Water Supply and they have come to an agreement to install a pump in exchange to use the water.</p>	Hentie Kotze
			<p>When that meeting was held the resource use was discussed and we need to identify a borehole here that can be furnished with a pump and solar power which will be used by the contractor during construction and then handed over to the community when the construction is complete.</p>	Hon Cllr Hausiku
7	Why are only 5 people going to be employed? Is it until the contract is complete?	Karamata	<p>The contractor is recruiting the people and they were required to submit a list of the labour that they need, that was the agreement. We will be having a separate meeting with Jaapie and the Committee to address these issues with the contractor. Let's stick to the purpose of this meeting. The project is for our benefit, and we need to support the project from the community's side.</p>	Hon Cllr Hausiku
8	The contractor is using the spring water, are they allowed to?	Chief Idah Maekopo	That water may be used.	Hentie Kotze

9. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The Minimum Requirements for the Environmental and Social Management Programme (ESMP) are attached in this document. It sets out as the minimum generic standards applicable to such a project. A detailed site specific ESMP should be drafted before commencement of the Construction phase.

The ESMP is intended to bridge the gap between the Environmental Assessment (EA) and the implementation of the project, particularly with regards to implementing the mitigation measures recommended in the Environmental Assessment (EA). Monitoring, auditing and taking corrective actions during implementation are crucial interventions to successfully implement the ESMP.

The ESMP detail actions to ensure compliance with regulatory bodies and further ensures that environmental performance is increased through mitigation measures on impacts as they occur.

ESMP implementation is a cyclical process that converts mitigation measures into actions and through cyclical monitoring, auditing, review and corrective action, ensures conformance with stated ESMP aims and objectives. Through monitoring and auditing, feedback for continual improvement in environmental performance must be provided and corrective action taken to ensure that the ESMP remains effective.

9.1 ESMP Administration

The ESMP must be part of the Tender and Contract documentation. Copies of the ESMP shall be kept at the site office and will be distributed to all senior contract personnel. All senior personnel shall be required to familiarize themselves with the contents of this document.

9.2 Roles and Responsibilities

The implementation of the ESMP requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during each phase.

Engineer and Engineer's Representative (ER)

The Engineer shall delegate powers to the Engineer's Representative (ER) in respect of implementation of the ESMP. The Engineer has the responsibility to ensure that the Employer's responsibilities are executed in compliance with relevant legislation and the ESMP. The Engineer also has the responsibility to approve the Contractor's appointment of the Environmental Control Officer (ECO).

Any on-site decisions regarding environmental management are ultimately the responsibility of the Engineer. The ER shall have the following responsibilities in terms of the implementation of this ESMP:

- Controlling that the necessary environmental authorizations and permits have been obtained by the Contractor.
- Advising the Contractor and the Contractors ECO in finding environmentally responsible solutions to problems.
- Taking appropriate action if the specifications are not followed.

- Ordering the removal of person(s) and/or equipment not complying with the ESMP specifications.
- Issuing penalties for non-compliance to mitigation measures pertained in the ESMP.
- Advising on the removal of person(s) and/or equipment not complying with the specifications.
- Auditing the implementation of the ESMP and compliance with authorization on a monthly basis.
- Undertaking a continual review of the ESMP and recommending additions and/or changes to the document after completion of the contract.

Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) will be a competent person from the staff of Contractor to implement the on-site environmental management of this ESMP by the Contractor. The ECO shall be on site daily and the ECO's duties will include the following:

- Regular site inspections of all construction areas with regard to compliance with the ESMP.
- Evaluate and verifying adherence to the ESMP.
- Advising the Contractor in finding environmentally responsible solutions to ESMP non-compliance activities.
- Organise and facilitate environmental awareness training for all new personnel coming onto site.

9.3 Environmental Awareness Training

Before any work is commenced on the Site, the Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the ESMP. The Contractor shall liaise with the Engineer during establishment phase to fix a date and venue for the training and to agree on the training content.

The Contractor shall provide a suitable venue and ensure that the specified employees attend the course. The Contractor shall ensure that all attendees sign an attendance register and shall provide the ER with a copy of the attendance register. The presentation shall be conducted, as far as is possible, in the employees' language of choice.

As a minimum, training should include:

- Explanation of the importance of complying with the ESMP.
- Discussion of the potential environmental impacts of construction activities.
- The benefits of improved personal performance.
- Employees' roles and responsibilities, including emergency preparedness.

- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the specifics of this ESMP and its specification (no-go areas, etc.)
- Explanation of the management structure of individuals responsible for matters pertaining to the ESMP.
- The contractor shall keep records of all environmental training sessions, including names, dates and the information presented.

9.4 Public Participation

An on-going process of public participation shall be maintained during construction to ensure the continued involvement of interested and affected parties (I&APs) in a meaningful way. Public meetings to discuss progress and any construction issues that may arise shall be held at least every two months and more regularly if deemed necessary by the ER. These meetings shall be arranged by the ECO and shall be facilitated by the Contractor. The Contractor shall present a progress report at each public meeting. All I&APs that participated in or were informed during the EIA shall be invited to each of the public meetings.

9.5 Environmental Auditing

Environmental auditing should be conducted at least once every three months during the construction phase. These environmental audits will be conducted by an environmental consultant with the required experience and sub-contracted by the Engineer.

Benefits derived from the audit process include:

- identification of environmental risks observed during a site visit;
- development or improvement of the environmental management system;
- suggested improvements to the ESMP;
- inspecting the required permits and licenses;
- increase in staff awareness with regards to the environment and the ESMP;
- inspect environmental incident reports, environmental monitoring and recording documentation. These documents will be compiled and filed by the ECO.

Commonly, the audit of a site will cover all environmental management procedures, operational activities & systems, and environmental issues.

9.6 Documentation, Record keeping and Reporting Procedures

The Contractor shall develop and implement an effective document handling and retrieval system for all ESMP documentation on site. This will ensure that there is adequate ESMP documentation control and will facilitate easy document access and evaluation. ESMP documentation should include (but are not limited to):

- ESMP implementation activity specifications;
- training records;

- site inspection reports;
- monitoring reports; and
- auditing reports.

The Environmental Control Officer is responsible for ensuring that the registration and updating of all relevant ESMP documentation is carried out. The ECO is responsible for ensuring that the latest versions of documents are used to conduct tasks which may impact the project environment.

9.7 Environmental Mitigation Measures / Environmental Management Plan

The following mitigation measures are sufficient to reduce or avoid negative impacts associated with the construction of a road. It is based on the activities mentioned in this report that will occur during the construction phase of the project:

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
9.7.1 MANAGEMENT AND MONITORING	To ensure that the provisions of the ESMP are implemented during construction.	The independent environmental consultant shall monitor that all aspects of the ESMP are implemented during the construction phase of the project. The environmental consultant shall conduct site inspections and attend meetings. The site meeting agenda shall make provision for reporting on non-compliance issues related to the ESMP.	Environmental consultant together with the ECO.
9.7.2 COMMUNICATION AND STAKEHOLDER CONSULTATION	To ensure that all stakeholders are adequately informed throughout construction and that there is effective communication with and feedback to the consultant and client.	<ul style="list-style-type: none"> a. The Contractor shall appoint an ECO from the construction team to take responsibility for the implementation for all provisions of this ESMP and to liaise between the contractor, community, and the Engineer. The ECO must be appointed at least 14 days after the site-handover. b. The Contractor shall at every site meeting report on the status of the implementation of all provisions of the ESMP. c. The contractor shall implement the environmental awareness training as stipulated in Section 9.3 above. d. The Contractor shall liaise with the social and environmental consultants regarding all issues related to community consultation and negotiation as soon as possible after construction commences. 	Contractor/ Environmental Consultant to monitor.
9.7.3 HEALTH AND SAFETY	To ensure health and safety of workers and the public at all times during construction	<ul style="list-style-type: none"> a. The Contractor shall submit a strategy to ensure the least possible disruption to traffic and potential safety hazards during construction. b. The strategy should include a schedule of work indicating when and how road crossings (construction at existing intersections) will be made. The schedule should be updated and distributed to all stakeholders. c. The Contractor shall also liaise with the Traffic Authorities in this regard. 	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<ul style="list-style-type: none"> d. Proper traffic and safety warning signs must be placed at the construction site as required by the Road Traffic and Transport Act, 1999 (Act 22 of 1999) and the Road Traffic and Transport Regulations promulgated in terms of the Act. e. The Contractor must adhere to the regulations pertaining to Health and Safety, with special reference to the provision of protective clothing. Failing to issue workers with the proper PPE, the Contract may be suspended until corrective actions were taken. f. Dust protection masks shall be provided to task workers if they complain about dust. g. Surface dust will be contained by wetting dry surfaces periodically with a water bowser, sprinkler system or any suitable method. This applies to all individual construction areas on site and to the sections of the road affected. h. Potable water shall be available to workers to avoid dehydration. This water shall be of acceptable standards to avoid any illness. At least 3 liters of drinking water per person per day shall be made available during construction. i. The contractor shall enforce all relevant Health and Safety Regulations for the specific activities associated with this project. j. The Contractor shall implement a HIV/AIDS awareness programme as part of Health and Safety. k. Blasting may only be conducted by a qualified person and all laws and regulations will be enforced before and during blasting. Blasting shall be done in accordance with Clause 1222 of the Standard Specification of the Roads Authority and the Explosives Act 26 of 1956 (Regulations promulgated as amended by the Explosive Amendment Act, 1993). 	
9.7.4 CONSERVATION OF THE NATURAL AND HISTORICAL ENVIRONMENT	To minimise damage to soil, vegetation and historical resources during the construction phase. This includes soil crusting, soil	<ul style="list-style-type: none"> a. The main contractor's camp shall not be constructed closer than 500m from any river, stream or tributary from any river / stream. b. At the outset of construction (or during construction as may be applicable), the ECO and the contractor shall visit all proposed borrow-pits, haul roads, access roads, camp sites, and other areas to be disturbed outside the road reserve. 	Contractor will ensure the mitigation measures are enforced at his own expense.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
	<p>erosion and unnecessary vegetation destruction.</p> <p>Management of water (domestic and construction).</p>	<p>Areas to be disturbed shall be clearly demarcated, and no land outside these areas shall be disturbed or used for construction activities.</p> <ul style="list-style-type: none"> c. Detailed instructions and final arrangements for protection of sensitive areas, keeping of topsoil and rehabilitation of disturbed areas shall be made, in line with the guidelines in this document. The ECO shall be consulted before any new areas are disturbed which have not yet been visited. d. No off-road driving shall be allowed, except on the agreed haul and access roads. e. Vegetation shall be cleared within the road reserve as necessary for the construction of the road, while trees with a trunk diameter exceeding 500 mm (1 meter above ground) shall be left intact or as directed by the Engineer. The areas on either sides of the road reserve may not be cleared of vegetation, unless permission is given to do so for detours or access roads. This measure is subject to the Roads Authority's specifications with regards to the road reserve. f. A prescribed penalty will be deducted from the Contractor's payment certificate for every mature tree removed without approval. g. No trees may be felled or live wood in the project area removed by any member of the construction team, including sub-contractors. Contravention of this arrangement is liable for a prescribed penalty. h. A prescribed penalty will be deducted from the Contractor's payment certificate if it is shown that trees and/or branches have been broken down wilfully and unnecessarily, or that any plants have been collected illegally, by any of the staff or sub- contractors. i. Trees that need to be trimmed should be done so with the right equipment and aesthetical acceptable. The use of a saw fit for its purpose is obligatory and the branches of trees will not be broken off by the use of other machinery. j. Where topsoil is available, this must be stockpiled separately in 1,00 m high piles and this used to cover the damaged areas outside the road reserve such as access roads to borrow pits, and clearing and grubbing areas. 	<p>The ECO will monitor.</p>

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<ul style="list-style-type: none"> k. Where compaction has taken place in disturbed areas, these areas must be ripped and covered with topsoil separately kept for this purpose. This aspect shall be provided for in the schedule of quantities – covered by the Standard Specification of the contract. l. Poaching or collecting of wild animals is prohibited. m. The killing of any animal (reptile, bird or mammal) is prohibited, unless for legal hunting purposes. n. A prescribed penalty will be deducted from the contractor’s payment certificate if it is shown that any of his staff or sub-contractors are involved in trapping, hunting or any kind of collecting of wild animals in the vicinity of the work sites. Such activities shall be reported to Nampol for prosecution. o. Pipelines for the pumping of construction water shall as far possible run within the road reserve and along existing tracks and other roads. p. Water will not be allowed to be wasted. This includes water required for construction and domestic purposes. 	
9.7.5 BORROW PIT MANAGEMENT AND REHABILITATION	<p>To ensure proper soil management (combat soil erosion and promote biological activities).</p> <p>Preserve and manage natural vegetation.</p> <p>To ensure health and safety around the borrow pits (decommissioning phase).</p> <p>To stimulate ecological processes after</p>	<ul style="list-style-type: none"> a. The removal of material at borrow-pit sites shall be focused where the least significant vegetation exists. If material is only available around significant mature trees (more than 500 cm circumference – 1 meter above ground), clusters of trees should be preserved while suitable material is excavated around them. A 3-meter buffer must be conserved around the cluster of mature trees. The ER shall visit all proposed borrow-pit areas and indicate where and how material may be removed, before works commence. A cluster constitutes 5 or more trees in proximity (within 20m radius). b. The Contractor shall use safety tape to mark these tree clusters as to avoid confusion or miss-understandings. c. The Engineer shall draft a plan for each proposed borrow pit. Similarly, the Contractor shall draft such a plan for each borrow-pit proposed by him. This plan must indicate the required resources; borrow pit boundaries and sensitive areas that may not be mined (indication of the mature trees). 	<p>Contractor will ensure the mitigation measures are enforced at his own expense.</p> <p>The ECO will monitor.</p>

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
	<p>decommissioning (to stimulate vegetation and other biological activities).</p> <p>To establish borrow pits which is aesthetically pleasing after decommissioning.</p>	<ul style="list-style-type: none"> d. The borrow pit areas will be clearly marked by using brightly painted markers. These markers will demarcate the area where materials might be removed and stored. e. All borrow-pits must be rehabilitated. f. The contractor shall liaise with the applicable local headmen OR residents regarding whether their borrow-pits shall be shaped as water reservoirs during rehabilitation. g. At those borrow-pits not to be shaped as reservoirs, topsoil (the top layer containing organic material) shall be stockpiled separately and the stockpile maintained for use at the end of the contract to rehabilitate the borrow pits. h. The topsoil shall be marked as to inform the machine operators that the material is top soil and should be left alone for rehabilitation purposes. i. The borrow pits shall be rehabilitated by trimming the sides to a slope not steeper than 20° (1:5) and evenly spreading the topsoil over the slopes to allow for the growth of new vegetation. j. All spoil material at the borrow pits shall be neatly shaped and covered with overburden (if available). k. Access to borrow pits shall be controlled (using gates or manned positions). l. The borrow pit floor shall be levelled evenly as part of rehabilitation. m. A Borrow Pit Rehabilitation Plan shall be compiled by the Contractor indicating the rehabilitation schedule (time-frames) for the various borrow pits to be rehabilitated. n. After the borrow pit has been rehabilitated, the Rehabilitation Checklist will be completed and signed by the relevant parties. 	
<p>9.7.6 WASTE AND POLLUTION MANAGEMENT</p>	<p>To avoid contribution to potential surface and groundwater pollution.</p> <p>To avoid contribution to potential soil pollution.</p>	<ul style="list-style-type: none"> a. General waste generated during construction will be disposed of on a regular basis at an approved waste disposal site. A temporary waste site may be demarcated for temporary storage of waste, but this area will be identified and clearly marked. b. The temporary domestic waste site will be fenced off with access control to the area. 	<p>Contractor will ensure the mitigation measures are enforced at his own expense.</p>

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
	To ensure that sound waste management practices are adhered to during construction.	<ul style="list-style-type: none"> c. Adequate separate containers for hazardous and domestic waste will be provided on site and at the construction camp. d. The workforce will be sensitised to dispose waste in a responsible manner and not to litter. 	The ECO will monitor.
		<ul style="list-style-type: none"> e. Waste bins will be placed in and around the construction site to facilitate proper waste management. f. No hazardous or domestic waste may remain on site after completion of the project. g. The construction of properly designed sewage facilities is required at the camp site. The sewage should either be removed on a regular basis and dumped at an approved sewage facility or where it is not possible, the sewage should be managed to such an extent that it does not cause any negative effects on the bio-physical or social environments. Proof of disposal shall be kept as record in the ECO file for environmental performance assessment purposes. No free-flowing sewage is acceptable. h. Toilet facilities will be available in the following ratio: 2 toilets for every 20 females and one toilet for every 20 males. The toilets should be such that these can be transported for various site selections and to be emptied at an approved sewage site. No person should have to walk more than 1km for the use of a toilet. i. A demarcated vehicle service area will be provided. This area will have an impermeable floor, oil trap and dedicated wash bay area. All used water will first run through the oil trap before the effluent is allowed to exit. The oil trap will be cleaned on a regular basis to ensure its efficiency. j. Servicing of vehicles is only permitted in the demarcated vehicle service area, except for large immobile vehicles which may be repaired on site, on condition that oils and lubricants are prevented from spilling through the use of drip trays or other suitable containers. k. Drip trays will be available for all vehicles that are intended to be used during construction. These trays will be placed underneath each vehicle while the 	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<p>vehicles are parked. The drip trays will be cleaned every morning and the spillage handled as hazardous waste.</p> <ul style="list-style-type: none"> <li data-bbox="898 347 1877 432">l. Machines operating during the day that show signs of excess leaking (verified by ECO or Engineer) should be withdrawn from the task and repaired by the contractor. <li data-bbox="898 448 1877 504">m. Accidental spills will be cleaned immediately. The contaminated soil will be suitably disposed of in a container suitable for hazardous waste. <li data-bbox="898 520 1877 699">n. Used oil / lubricants, and other hazardous materials shall be stored in separate containers (metal or plastic). These containers shall be stored in an area with an impermeable floor and bunded walls. The materials and used oils / lubricants shall be disposed of at an approved waste disposal site or for collection by an oil recycling company such as WESCO Salvage (this company collects significant quantities of oil from central locations throughout the country). <li data-bbox="898 715 1877 863">o. Fuel tanks on site will be properly bunded. The volume of the bunded area will be enough to hold 1.5 times the capacity of the storage tanks. The floor of the bunded area will be impermeable (welded plastic sheets, concrete or clay) and the sides high enough to achieve the 1.5 times holding capacity. There will be a valve installed in the bunded area to allow rainwater drainage. <li data-bbox="898 879 1877 963">p. Foam fire extinguishers will be near fuel kept on site. There will be trained personnel to handle this equipment. At least two extinguishers will be placed at every fuel storage area. <li data-bbox="898 979 1877 1091">q. Bitumen batching areas will make use of drip trays to prevent unnecessary spillage of any bitumen products. Cleaning of spray nozzles should be done on the bypass (if it is gravel) or any other section of the road that is in use. This serves as a dust suppressor. <li data-bbox="898 1107 1877 1163">r. Bitumen cleaning pits shall be constructed that are effectively lined with an impermeable material. No leaks / seepage is allowed from these bitumen pits. <li data-bbox="898 1179 1877 1321">s. Should large quantities of bitumen need to be disposed, it can be done at a borrow pit with the following mitigation measures: (i) the borrow pit shall not be closer than 100m from any river, drainage tributary or stream ; (ii) The aquifer level shall not be closer than 10 meters to the borrow pit floor; (iii) a plastic lining will be laid underneath the proposed dumping area and the spoiled bitumen 	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		shall be covered with the same plastic lining as to prevent leaching; (iv) at least three meters of material shall be placed on top of the plastic lining.	
9.7.7 REHABILITATION OF CONSTRUCTION SITE, SERVITUDES AND CLEARED AREAS (WHICH INCLUDES STOCKPILES)	To rehabilitate the site office, work sites, servitude areas, tracks and other areas disturbed during construction as close to their original state as reasonably possible.	<ol style="list-style-type: none"> a. All banded areas, equipment, waste, temporary structures, stockpiles etc. must be removed from the camp and construction sites. b. All disturbed areas shall be reshaped to their original contours; as close as possible to the natural conditions before construction commenced, including the road reserve, detours, construction camps, and temporary access routes. c. All cuttings must be shaped with a slope to provide a natural appearance, without having to destroy significant vegetation on top of the slope (this applies to big trees as mentioned in the ESMP only). 	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

9.8 Non-Compliance

A) Procedures

The Contractor shall comply with the environmental specifications and requirements on an on-going basis and any failure on his part to do so will entitle the ER to impose a penalty. In the event of non-compliance, the following recommended process shall be followed:

- The Engineer shall issue a notice of non-compliance to the Contractor through the ECO, stating the nature and magnitude of the contravention.
- The Contractor shall act to correct the non-conformance within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- The Contractor, through the ECO, shall provide the ER with a written statement describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- In the case of the Contractor failing to remedy the situation within the predetermined time frame, the Engineer shall impose a monetary penalty based on the conditions of contract.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the Engineer shall be entitled to undertake or to cause to be undertaken such remedial works as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so.
- In the event of a dispute, difference of opinion, etc. between any parties with regard to or arising out of interpretation of the conditions of the ESMP, disagreement regarding the implementation or method of implementation of conditions of the ESMP, etc. any party shall be entitled to require that the issue be referred to specialists for determination.
- The Engineer shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remedial measures.

B) Offences and Penalties

Where the Contractor inflicts non-repairable damage upon the environment or fails to comply with any of the environmental Specifications, he shall be liable to pay a penalty fine over and above any other contractual consequence.

The Contractor is deemed NOT to have complied with this specification if:

- within the boundaries of the site, site extensions and haul/access roads there is evidence of contravention of these environmental Specification;
- environmental damage due to negligence;
- the Contractor fails to comply with corrective or other instructions issued by the Engineer within a specific time;

Penalties for the activities detailed below, will be imposed by the Engineer on the Contractor and/or his Subcontractors:

a.	Actions leading to erosion	A penalty equivalent in value to the cost of rehabilitation plus 20%
b.	Oil spills or hydrocarbon spillages	A penalty equivalent in value to the cost of clean-up operation plus an N\$ 5000 fine.

c.	Damage to indigenous vegetation	A penalty equivalent in value to the cost of restoration plus N\$ 5 000
d.	Damage to sensitive environments	A penalty equivalent in value to the cost of restoration plus N\$ 5 000
e.	Damage to cultural sites	A penalty to a maximum of N\$100 000 shall be paid for any damage to any cultural/ historical sites
f.	Damage to trees	A penalty to a maximum of N\$15 000 shall be paid for each tree removed without prior permission, or a maximum of N\$5 000 for damage to any tree, which is to be retained on site.
g.	Damage to natural fauna	A penalty to a maximum of N\$5 000 for damages to any natural occurring animals.
h.	Any persons, vehicles, plant, or thing related to the Contractors operations within the designated boundaries of a “no-go” area	N\$4 000
j.	Litter on site	N\$5 000
k.	Deliberate lighting of illegal fires on site	N\$ 5 000
l.	Any person, vehicle, item of plant, or anything related to the Contractors operations causing a public nuisance.	N\$1 000
m.	Constant leakages from the sewage system.	N\$ 15 000

Penalties may be issued per incident at the discretion of the Engineer. The Engineer will inform the Contractor of the contravention and the amount of the fine, and will deduct the amount from monies due under the Contract.

For each subsequent similar offence the fine may, at the discretion of the Engineer, be doubled in value to a maximum value of N\$10, 000.

Payment of any fines in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law. In the case of a dispute in terms of this section, the Engineer shall determine as to what constitutes a transgression in terms of these Environmental Mitigation Measures and the Non-compliance section of this document.

10. CONCLUSION AND RECOMMENDATIONS

The environmental investigation to determine the sensitivity of the impacts associated with the various options portrayed for this project was done according the legal requirements of the Environmental Management Act No. 7 of 2007 and associated Regulations of 2012.

Even though there are some negative impacts are associated with upgrading to low volume seal standard, the significance of these impacts are considered to be low to medium and these negative impacts could further be reduced or avoided by proper implementation of the Environmental and Social Management Plan.

This project does not pose significant environmental risks because the existing alignment will be followed. Waste management, pollution prevention and control as well as effective borrow pit rehabilitation will prevent any significant long-term negative effects associated with this project during construction.

The upgrade to low volume seal standard will bring about the most positive impacts associated with the operational phase of the project. These include reducing the vehicle operating cost for the road user, improved road user safety.

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APPENDIX A

BASIC RULES OF CONDUCT

The following list represents the basic Do's and Don'ts towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid.

NOTE: ALL new site personnel must attend an environmental awareness presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ECO.

DO:

- Use the toilet facilities provided;
- Report dirty or full facilities;
- Clear your work areas of litter and building rubbish at the end of each day;
- Use the waste bins provided and ensure that litter will not blow away;
- Report all fuel or oil spills immediately & stop the spill continuing;
- Dispose of cigarettes and matches carefully (littering is an offence);
- Confine work and storage of equipment to within the immediate work area;
- Use all safety equipment and comply with all safety procedures;
- Prevent contamination or pollution of soil, streams and water channels;
- Ensure a working fire extinguisher is immediately at hand if any "hot work" is undertaken e.g. Welding, grinding, gas cutting etc;
- Report any injury of an animal;
- Drive on designated routes only;
- Prevent excessive dust and noise.

DO NOT:

- Remove or damage vegetation without direct instruction;
- Make any fires;
- Injure, trap, feed or harm any animals - this includes birds, frogs, snakes, lizards etc;
- Enter any fenced off or marked area.
- Allow cement or cement bags to blow around;
- Speed or drive recklessly;
- Allow waste, litter, oils or foreign materials on the ground or in any streams;
- Swim in the dam;
- Litter or leave food laying around;
- Waste water;
- Use vehicles that are leaking oil or any hydrocarbon substance.

APPENDIX B

REHABILITATION CHECKLIST FOR THE FINALIZATION OF BORROW PITS

Borrow Pit Name and Number: _____

Date: _____

It is essential that a borrow pit meet the requirements set out in the approved EMP before closure. After the requirements are met, the borrow pit can be signed off and regarded as rehabilitated. After the borrow pit has been signed off, the contractor or any other party may not be allowed to engage in any activities in or around the signed off borrow pit. This includes, but is not limited to activities such as further excavations, dumping of overburden or spoils, sloping, etc.

Criteria for rehabilitation according to the EMP:

Item Number	Description	Comments	Complied
			Yes / No
1	Gradient of the borrow pit walls are less than 18 degrees (1:3).		
2	The walls is covered with overburden/top soil with a thickness of more than 150 mm.		
3	The floor of the borrow pit is level and no material is found within the pit.		
4	The compacted areas are ripped to a minimum depth of 300mm.		
5	No man made topographical high or low points are found in or around the borrow pit. These might include berm walls, excavation holes, stock piles, etc.		
6	The site is clear of any illegal dumping of foreign or other materials in and around the borrow pit.		
7	All invasive vegetation has been removed from site.		

When the answer to **all of the above** statements are "Yes" then the R.E. or authorized person can sign off the borrow pit and regard it as closed.

Signed off by: _____

Contractor: _____

Residing Engineer / Authorized Person

Contractor

APPENDIX C

CURRICULUM VITAE OF COMPILER

APPENDIX D

MINUTES OF THE PUBLIC PARTICIPATION MEETING

Environmental Impact Assessment for the Low Volume Seal Construction of 6km of Road in Gam as Part of the Low Volume Seal Program

Meeting Minutes

Type of Meeting: Public Consultation Meeting
Venue: Gam Conservancy Office Open Area
Date: 5 August 2021
Time: 10h15 – 11h45

Agenda

1. Prayer – Chief Hans Kandji
2. Welcome – Honourable Councillor Johannes Hausiku
3. Project Team Introduction – Rian du Toit
4. Environmental Impact Assessment (EIA) – Rian du Toit
5. Project Scope – Hentie Kotze
6. Q&A
7. Conclusion – Rian du Toit
8. Word of thanks and prayer – Chief Justice Mapimbi

1. Welcome Honourable Councillor Johannes Hausiku, Tsumkwe Constituency
2. Prayer Chief Hans Kandji
3. Project Team Introduction Rian du Toit, Consulting Team
 - Enviro Management Consultants (EMC) – Mr Rian du Toit & Ms Maike Prickett
 - Element Consulting Engineers – Mr Hentie Kotze
4. EIA Presentation (see attached presentation document) Rian du Toit, Consulting Team
 - *What is an EIA? It is a practical implementation to prevent negative and improve positive impacts.*
 - *Environment defined - bio-physical (water, soil, plants, etc), social and legislation*
 - *Impacts – what we do and how that changes the environment (cause and affect)*

- *Building a road: what is needed to build the road (layer works, materials), how does that change the environment, during operation what are the positive or negative effects of the road on the environment*
- **Rules and Regulations/Legislation – Constitution of Namibia, Environmental Management Act No.7 (2007)**
- *What is the ultimate objective of an EIA? To maintain sustainability - a balance between development and conservation*
- *Normal stakeholder concerns of road development projects:*
 - *Land – taken and no benefit to stakeholder*
 - *Water / Materials*
 - *Consider the gain of such a project: economic gain*
- *The objective of EMC is to:*
 - *Consult the public, stakeholders that know the area need to give their input (comments and concerns)*
 - *Consider the negative and positive impacts*
 - *Present and Submit EIA and application for Environmental Clearance Certificate (ECC) application to the Ministry of Environment, Forestry and Tourism (MEFT) – they grant or reject ECC for this project*
 - *If ECC is granted, it is valid for 3 years, once this has been issued the project can commence. We need to avoid/minimise/reduce the negative impacts and enhance the positive impacts.*
We want to avoid – spillage, pollution (surface water/soil, etc), bad waste management practices, etc.
 - *Borrow pits: they must be left by the contractor in an acceptable condition.*
- *You are welcome to raise your comments and concerns.*
- *This project will benefit the community, the positive impacts can be seen all over the country where roads are being upgraded, but we need to do it responsibly and look after the environment and people.*

5. Project Scope – Technical Presentation

Hentie Kotze, Consulting Team

- *This is the 3rd time that we are having a meeting here about this project.*
- *We are going to construct approx. 6km of low volume seal road through Gam, starting 500m south of Gam and stopping 2km north of Gam.*
- *Then we are building access roads to the clinic, school and in the direction of the veterinary office, if we can get up to the airfield we will do that. If there are any other roads we will look at them but the Roads Authority must give their approval, because we are working on a budget.*
- *The Governor was adamant that the sharp curve 10km outside of Gam be looked at, this curve will be flattened and moved to behind the old borrow pit and two smooth curves added to make it safer.*
- *The drains next to the road will be cleaned up and make it look nice to take some of the water. Drainage structures will be constructed at the passenger waiting area / open market and the auction pens.*
- *This project has a fixed budget and it is a direct appointment of the contractor, there is only a certain amount of work that we can do for that amount of money and any additional requests need to be submitted in writing to the Roads Authority of Namibia. The RA can approve or reject these requests.*
- *The Government has taken steps to develop Gam and we are positive that development is also taking place on the road from Grootfontein to Tsumkwe and this will extend to Gam. One day we will be able to travel from Grootfontein to Gam by tar road.*

- *The contractor appointed for this project is Nexus, they have established a camp. It was discussed with the Governor, the Councillor and the contractor how the procurement of labour is going to work. If there are any labour issues you can speak to us, but we cannot force them to do anything because they manage their own affairs, but we can speak to them.*
- *The building that is in the road reserve will need to be removed and we need to know who the owner is. We need to remove it and sort it or build it somewhere else.*
 - *Public response: Ministry of Works, Transport and Communication. Nobody is using it.*

6. Questions & Answers

Hon Cllr Hausiku:

We spoke to the contractor about employment, we don't want them to bring people from outside while we have young people here that are willing and able to work. We agreed that when they start employing, they should give us a list of the labour that they require and based on that we can find people for them, but they have not done so. According to the contractor they only need 3 people now which have already been employed based on a letter that he received from one of the chiefs and in total only 5 people will be employed on this project. This was not done through the Councillor's Office. It was agreed with the contractor that they will have a meeting after this one.

Response (Hentie Kotze): Unfortunately, road construction does not take a lot of people, especially surface road construction. Different phases in the road construction will require a different amount of labour.

Q1. Chief Hans Kandji

Your duty concerning the environment, what type of duties are you focussing on to tell the community that this environment is suitable for this project?

Response (Rian du Toit): The focus is to make sure that pollution and other control measures are in place, no fuel spillage, bitumen etc. We write an Environmental Management Plan (EMP) that includes borrow pit rehabilitation (left in a safe and proper way), how the contractor camp needs to be managed, and addresses environmental and socio-economic shortcomings all of which the contractor needs to adhere to. Our involvement is not once off, we will do site visits every 2 or 3 months and ensure that the project is managed correctly and the contractor adheres to the EMP. We need to make sure that the road is constructed without damaging your natural environment.

Q2. Chief Jakob Maekopo

You mentioned that you must apply for permission from MEFT? What permission is that?

Response (Rian du Toit): Yes, we need to obtain permission. Due to covid restrictions and money availability this process was delayed.

Q3. Principal Chris Muatjetjewa

Is there a plan with regards to the feeder roads?

Response (Hentie Kotze): There is a plan available, we will ensure that you get a plan.

Q4. Kaveuana Tjihapa

The auction pens are not accessible. Can additional roads be looked at?

Response (Hentie Kotze): A written request must be sent to the client, they will then decide.

Q5. Lukas Kandji

How does payment for gravel and water work?

Response (Rian du Toit): Obtaining gravel and water for these projects is regulated by the law. Gravel – the top layer of material belongs to the landowner, below that everything is owned by the

government, except if the landowner has applied for a mining license. The Road Ordinance Section 30 states that all material except from a commercial source can be obtained from anywhere for the construction of roads.

The Minerals Act Schedule 1 states that any material used for the construction of a road may not be charged for unless the landowner has obtained a mineral license as stipulated under Schedule 2 of the Minerals Act. Sometimes material needs to be obtained from a commercial source such as Henning Crusher because it needs a specific specification. Material used for the construction of roads is not regarded a mineral, except if you want to sell it and for that you need a mining license and not just an environmental clearance certificate.

Q6. Chief Hans Kandji

The borrow pits here have been preserved by the conservancy. Does it mean you have to get permission from the conservancy to use them? They belong to the conservancy.

Response (Rian du Toit): Top layer of material belongs to landowner, underneath everything belongs to the government. If agricultural fields, buildings, trees etc are destroyed because of the location of a borrow pit, the landowner will be compensated accordingly.

Response (Hentie Kotze): According to the Road Ordinance 17 of 1972 – Obtaining Materials:

For the purpose of the construction, maintenance or repair of a proclaimed road the Executive Committee may through its representatives, officers or contractors enter upon any land with any vehicle, tool, material or animal and after the expiry of a period of fourteen days after a written notice of its intention to do so -

(i) has been handed to the owner, lessee or occupier of such land; or

(ii) has been sent to the last-known address of such owner, lessee or occupier by registered post; or

(iii) has been left at a conspicuous place on such land,

[The word "conspicuous" is misspelt in the Official Gazette, as reproduced above.]

it may without any compensation to the owner, lessee or occupier of the land, remove any material which may be necessary for such construction, maintenance or repair from such land or process it on such land and thereafter remove it therefrom and for this purpose it may build and maintain any access roads which it may consider necessary: Provided that -

(a) nothing shall be removed from any garden or other land usually cultivated, nor within two hundred and fifty metres of any house nor within fifty metres of any kraal;

(b) every excavation, including an excavation for a sample and an experimental pit, shall as soon as possible be filled up or fenced off or shall otherwise be made safe for human beings and animals again to the satisfaction of the owner, lessee or occupier of such land or as the Executive Committee directs;

[paragraph (b) substituted by Ord. 10 of 1974]

(c) any road provided for this purpose shall be ripped up in such a way that it cannot be washed away should the owner, lessee or occupier so desire;

(d) the Executive Committee, its representatives, officers or contractors shall, in exercising these powers take every care to prevent damage, injury, loss or inconvenience to the owner, lessee or occupier concerned:

Response (Hentie Kotze): Henning Crusher at Tsumeb are not charging money for the material, they are charging for the process of excavating and crushing the material, but not the material. The same goes for the water from Namwater, water under the ground belongs to the government people are charged for the process to obtain water, pumping the water, constructing pipelines and building infrastructure.

Two weeks ago a meeting was held between the Governor, the Councillor, the contractor and a representative from Rural Water Supply and they have come to an agreement to install a pump in exchange to use the water.

Response (Hon Cllr Hausiku): When that meeting was held the resource use was discussed and we need to identify a borehole here that can be furnished with a pump and solar power which will be used by the contractor during construction and then handed over to the community when the construction is complete.

Q7. Chief Idah Maekopo

The contractor is using the spring water, are they allowed to?

Response (Hentie Kotze): That water may be used.

7. Conclusion

Rian du Toit, Consulting Team

Honourable Councillor, thank you for informing the traditional leaders and community about this meeting and the project, we really appreciate it. We know that the benefit of this project is for everyone, and we understand that labour is always an issue, thank you for the way that you intend to take it up with the contractor. It is important that the community works together, this project is for Gam and we must all be responsible and work together to make this project work so that everyone can benefit. If there are questions or concerns, please speak to the contractor they also have a responsibility. From our side thank you for the meeting Hounourable Councillor and your Admin Officer Linda, thank you. It is important that everyone is informed on what way forward is.

We are positive that hope in the next couple of months you have a good road, and that the roads from Grootfontein and Tsumkwe will also be developed soon.

8. Word of thanks and prayer
Mapimbi

Chief Justice

We are thankful for our visitors who came for this meeting and to make us a nice road from which we will all benefit. Have a safe journey.

End of meeting 11:45