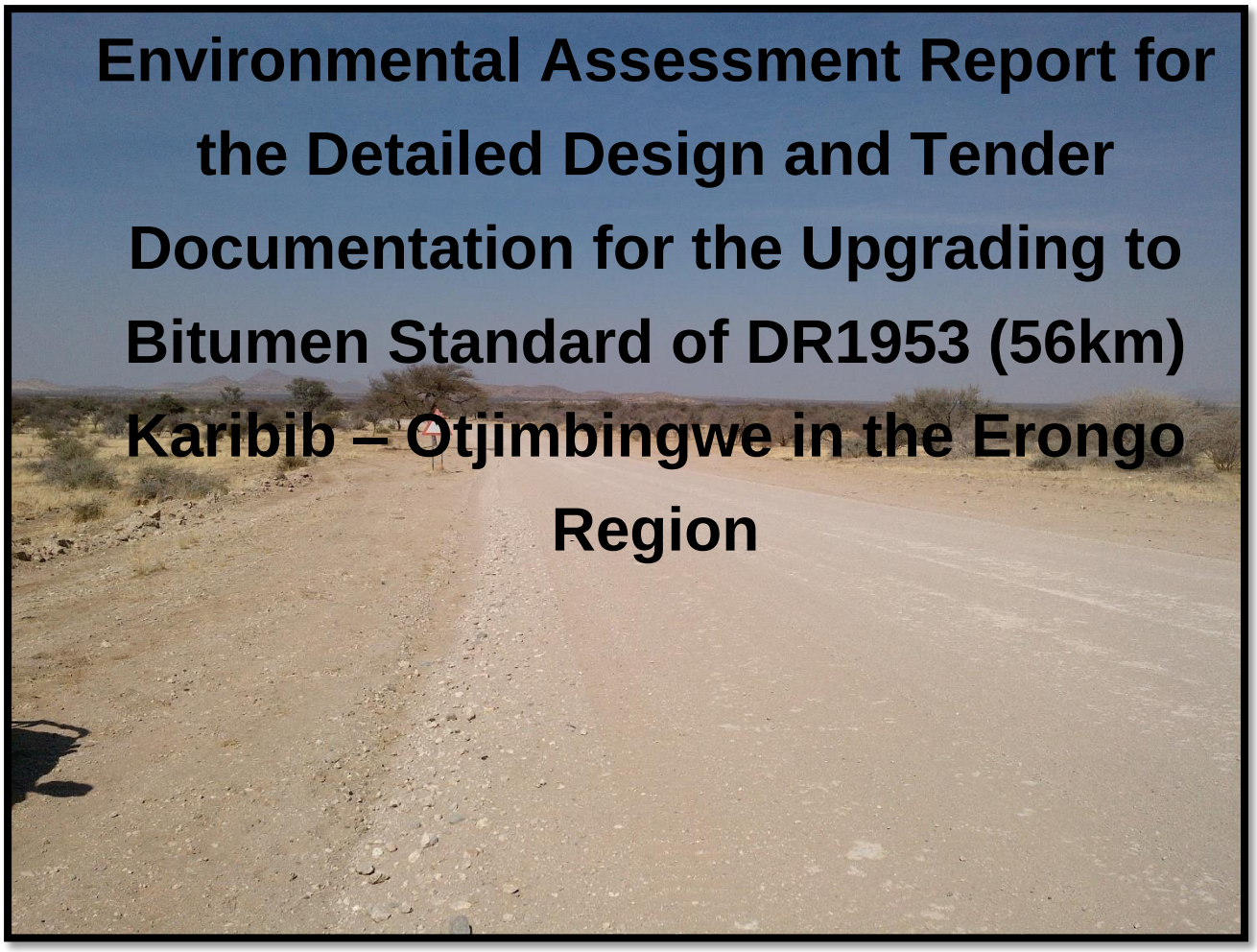

Environmental Assessment Report for the Detailed Design and Tender Documentation for the Upgrading to Bitumen Standard of DR1953 (56km) Karibib – Otjimbingwe in the Erongo Region

NOVEMBER 2021

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Environmental Assessment Report for the Detailed Design and Tender Documentation for the Upgrading to Bitumen Standard of DR1953 (56km) Karibib – Otjimbingwe in the Erongo Region

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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

Environmental Assessment Report for the Detailed Design and Tender Documentation for the Upgrading to Bitumen Standard of DR1953 (56km) Karibib – Otjimbingwe in the Erongo Region

1. INTRODUCTION

Enviro Management Consultants Namibia (EMCN) is appointed by the Roads Authority to undertake the Environmental Assessment relating to the proposed project – **Detailed Design, Tender Documentation for the Upgrading to Bitumen Standard of DR1953 (56km) Karibib – Otjimbingwe in the Erongo Region**

2. BACKGROUND INFORMATION

This report focuses on the project related to the upgrading to the Bitumen Standard of DR1953 (56km) Karibib – Otjimbingwe in the Erongo Region.

The greater D1953 is located in both the Khomas- and Erongo Regions, startiing at the junction with M0052 (Windhoek – Swakopmund - km 0.00) about 15km east of the Bosua Pass, from where it traverses the Khomas Highlands in a northerly direction, crossing the Swakop River at Otjimbingwe (km 47.71), eventually terminating into M0077 in Karibib (km 103.55).

According to RRS (Road Referencing System) data the first 55km comprises an earth-graded road, where after the road is gravelled up to Karibib for about 48km, with the last 150m being surfaced with a low volume seal (LVS). Table 1 below summarises the available RRS data relating to D1953.

Node Position			Node Description		
Start	End	Length	Start	End	Road Class
0.00	17.16	17.16	Intersection at M0052, close to Tsammamspost	Windhoek/Usakos Maintenance District	Earth graded
17.16	46.63	29.47	Windhoek/Usakos Maintenance District	D1976	Earth graded
46.63	47.71	1.08	D1976	D1967 (Otjimbingwe)	Earth graded
47.71	55.00	7.29	D1967 (Otjimbingwe)	End of earth graded section (Start of gravel section)	Earth graded
55.00	97.19	42.19	End of earth graded section (Start of gravel section)	D1992	Gravel
97.19	103.40	6.21	D1992	End of gravel section (Start of LVS)	Gravel
103.40	103.55	0.15	End of gravel section (Start of LVS)	Intersection at M0077, close to the Health Centre in Karibib	Low volume seal

Table 1: RRS data for DR1953

This project however only concerns the section between Otjimbingwe and Karibib, including 55.84km (according to the RRS data) which falls entirely in the Erongo Region. A few small settlements exist along the concerned section, including Neu-Schwaben, Okangava, Ondjeombaranga and Ozombero as is illustrated in Figure 1 below.

Figure 1: Locality of DR1953

The upgrading to bitumen standards is anticipated to largely follow the existing alignment, with isolated alignment improvements expected at substandard curves. It is expected that significant improvements will be made to the vertical alignment to overcome the natural undulating topography of the Karibib – Otjimbingwe area.

3. DETAILS OF THE APPLICANT AND CONSULTANT

3.1 Details of the Applicant

Applicant	Roads Authority of Namibia
Contact Person	Mr. Timu Hatuikilipi Network Planning Division, Roads Authority
Contact Numbers Email:	+264 81 271 4617 hatuikilipit@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 2 highlights the experience and qualifications of the environmental team.

Table 2: Capability Statement for the Environmental Project Team

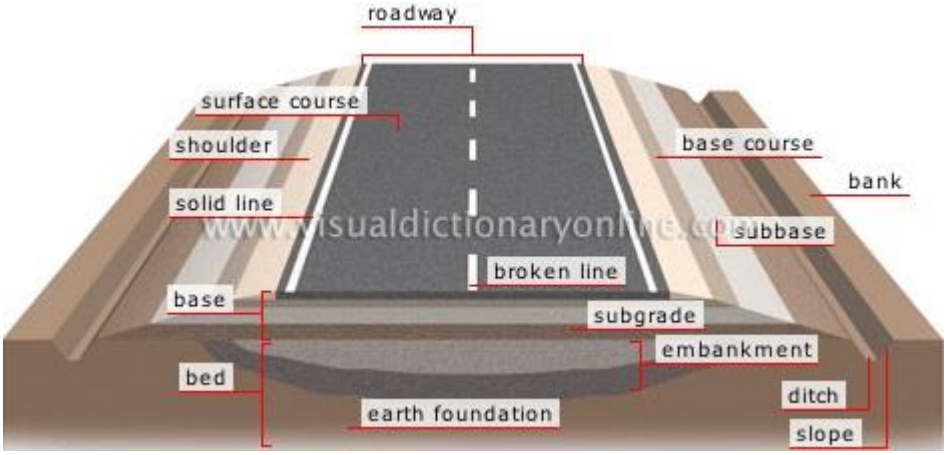
Name	**Role in the Project**	**Qualifications and Experience**
Rian du Toit	Environmental Assessment Practitioner and Project Manager	Master's degree in the Environmental and Social fields. Mr. du Toit has more than 19 years' experience in the field of environmental management, mostly related to roads,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

4.1 Typical Road Structure Cross Section of a Bitumen Road

The following picture represents the typical bitumen road cross section applicable to a section of this project and is discussed below.



4.1.1 Subbase:

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

4.1.2 Base course

- It is the layer immediately under the surface treatment or bitumen seal / asphalt.
- As base course lies close under the pavement surface it is subjected to severe loading. The material in a base course must be of high quality and its construction must be done to strict 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. The material may also have to be obtained from stone quarries opened by the contractor or from commercial sources.

4.1.3 Bituminous Pavement

For good service throughout the full life of the 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).

4.2 Borrow Pits

Suitable materials are needed for the construction of the selected layer, subbase, 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.

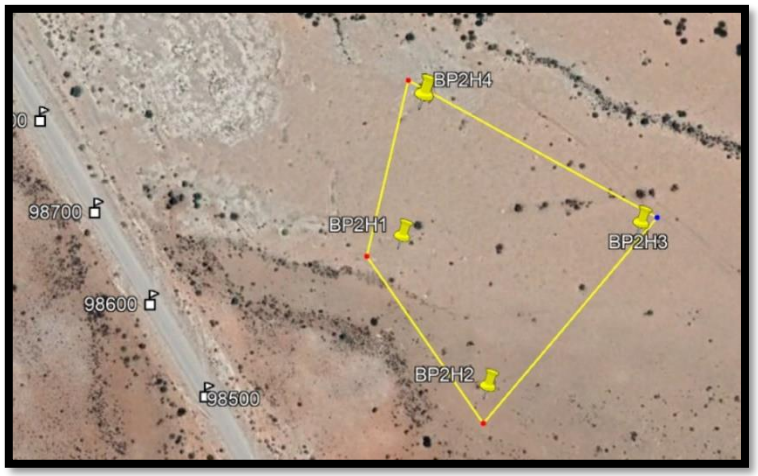
Another important issue is hauling distance. The borrow pits cannot be situated too far from the section of the road where the material is needed, therefore borrow pits cannot be located too far apart (incurring costs due to hauling).

The following detail is applicable to the various borrow pits that will be used during the construction phase of the project:

D1953 (Karibib to Otjimbingwe)
CS/RFP/RA-02/2020
BORROW PIT INFORMATION

Borrow-pit ID	General Description	Approx. Chainage (km)	Co-Ordinate		Distance from the CL (m)	Approx. Area (ha)	Material Quality	Proposed Use
			Lat	Long				
1	New Borrow Pit	102.0	21°58'10.52"	15°50'26.32"	1660m	5.47 ha	G6-G5	FILL; SSG; SUBBASE

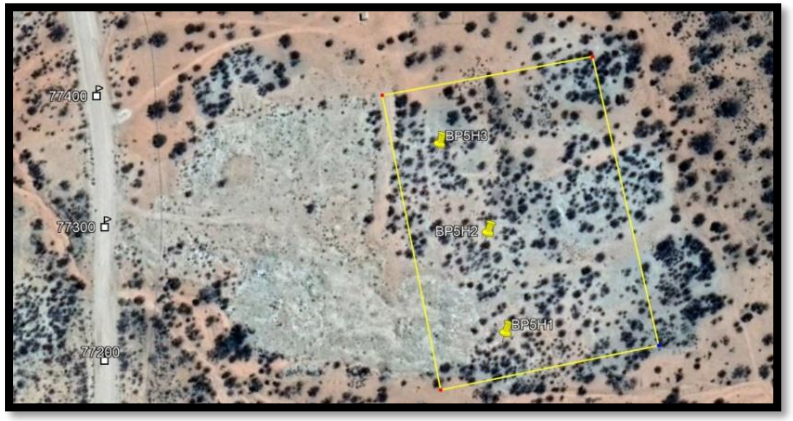
Borrow-pit ID	General Description	Approx. Chainage (km)	Co-Ordinate		Distance from the CL (m)	Approx. Area (ha)	Material Quality	Proposed Use
			Lat	Long				
2	Existing Borrow Pit	98.6	21°59'26.29"	15°52'36.35"	350m	4.44 ha	G8-G6	FILL; SSG



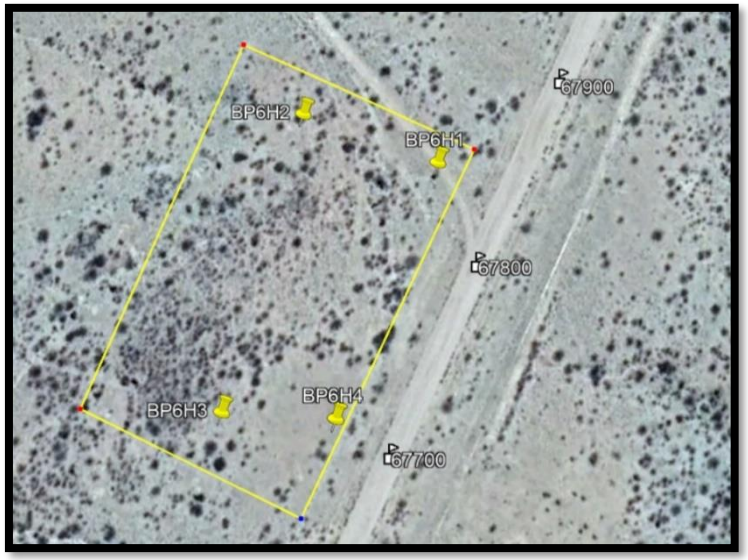
Borrow-pit ID	General Description	Approx. Chainage (km)	Co-Ordinate		Distance from the CL (m)	Approx. Area (ha)	Material Quality	Proposed Use
			Lat	Long				
3	New Borrow Pit	90.6	22º02'57.02"	15º55'07.52"	100m	3.23 ha	G6-G4	FILL; SSG; SUBBASE

Borrow-pit ID	General Description	Approx. Chainage (km)	Co-Ordinate		Distance from the CL (m)	Approx. Area (ha)	Material Quality	Proposed Use
			Lat	Long				
4	New Borrow Pit	81.5	22º07'22.66"	15º57'14.91"	160m	3.12 ha	G5-G4	SSG; SUBBASE; BASE

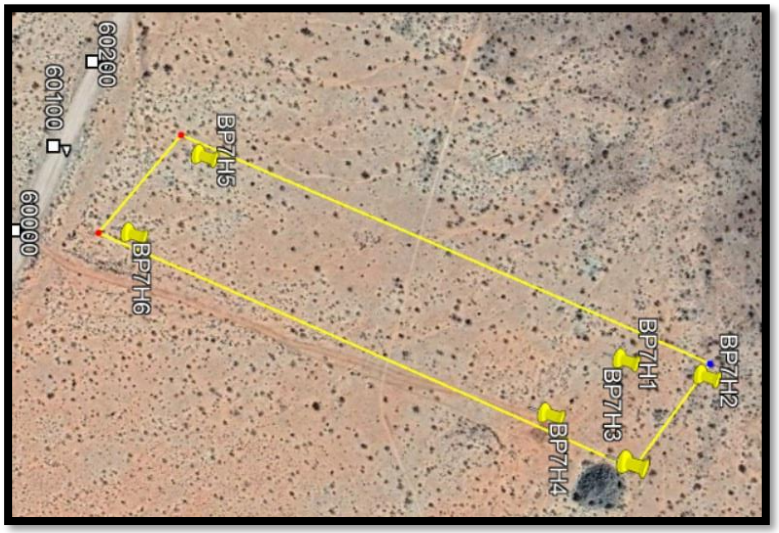
Borrow-pit ID	General Description	Approx. Chainage (km)	Co-Ordinate		Distance from the CL (m)	Approx. Area (ha)	Material Quality	Proposed Use
			Lat	Long				
5	Existing Borrow Pit	77.3	22º09'18.69"	15º58'38.45"	330m	3.87 ha	G5	SSG; SUBBASE



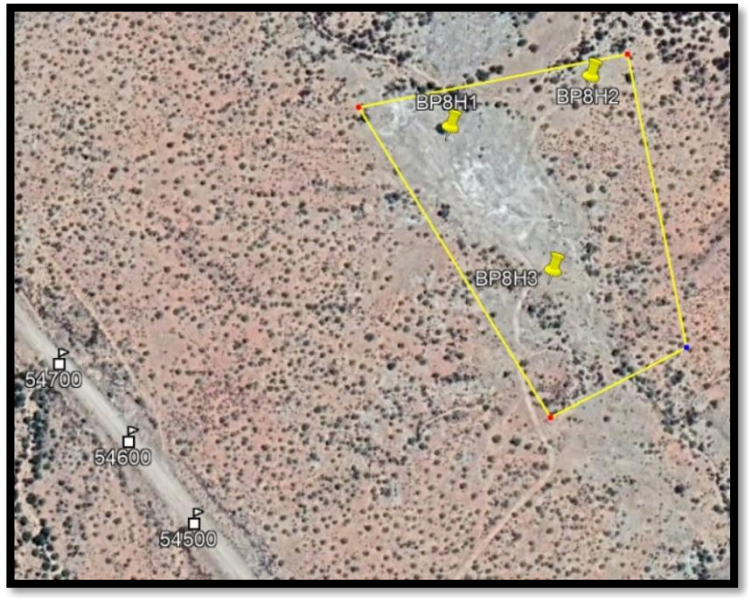
Borrow-pit ID	General Description	Approx. Chainage (km)	Co-Ordinate		Distance from the CL (m)	Approx. Area (ha)	Material Quality	Proposed Use
			Lat	Long				
6	New Borrow Pit	67.8	22º13'49.73"	16º00'27.69"	100m	2.37 ha	G5	SSG; SUBBASE



Borrow-pit ID	General Description	Approx. Chainage (km)	Co-Ordinate		Distance from the CL (m)	Approx. Area (ha)	Material Quality	Proposed Use
			Lat	Long				
7	New Borrow Pit	60.1	22º16'56.92"	16º02'22.83"	500m	8.34 ha	G5-G4	SUBBASE; BASE



Borrow-pit ID	General Description	Approx. Chainage (km)	Co-Ordinate		Distance from the CL (m)	Approx. Area (ha)	Material Quality	Proposed Use
			Lat	Long				
8	Existing Borrow Pit	54.6	22º18'27.07"	16º05'14.99"	500m	6.5 ha	G6-G5	SSG; SUBBASE



4.3 Construction Water Requirements

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.

4.4 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 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 Karibib and Otjimbingwe. 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 trough regular meetings.

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

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 3: 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, Forestry 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	Provision for the protection of natural vegetation. No regulations promulgated yet. Section 22(1): It is unlawful for any person to "*cut, destroy or remove:* • 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	• Permits should be obtained from Department of Forestry for the removal of protected trees.

Statute	Provisions	Project Implications
	for the purpose of stabilizing the sand or gully.	
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	Prevention and combating of soil erosion; conservation, improvement and manner of use of soil and vegetation, and protection of water sources. The Minister may direct owners or land occupiers in respect of *inter alia* water courses. No Regulations exist to this effect.	Removals of vegetation cover to be avoided and minimized at all costs. Soil pollution to be avoided.
Water Resources Management Act 11 of 2013	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. Section 566 states that any drilling to be conducted or enlargement of an existing borehole can only be conducted under a permit issued under the Act. 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.	Obligation not to pollute surface water bodies. The following permits are required in terms of the Water Act: • water abstraction license that will form part of the contract obligations.
Public Health Act 36 of 1919	Provides for the prevention of pollution of public water supplies.	A general obligation for the Contractor not to pollute the water bodies in the area.
Government Notice No 121 of 1969 as amended as well as Government Notice No. 156 of 1 Aug 1997	This is the general health regulations applicable to this project.	The Contractor will enforce the conditions required to ensure the health and safety of the workers.

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;

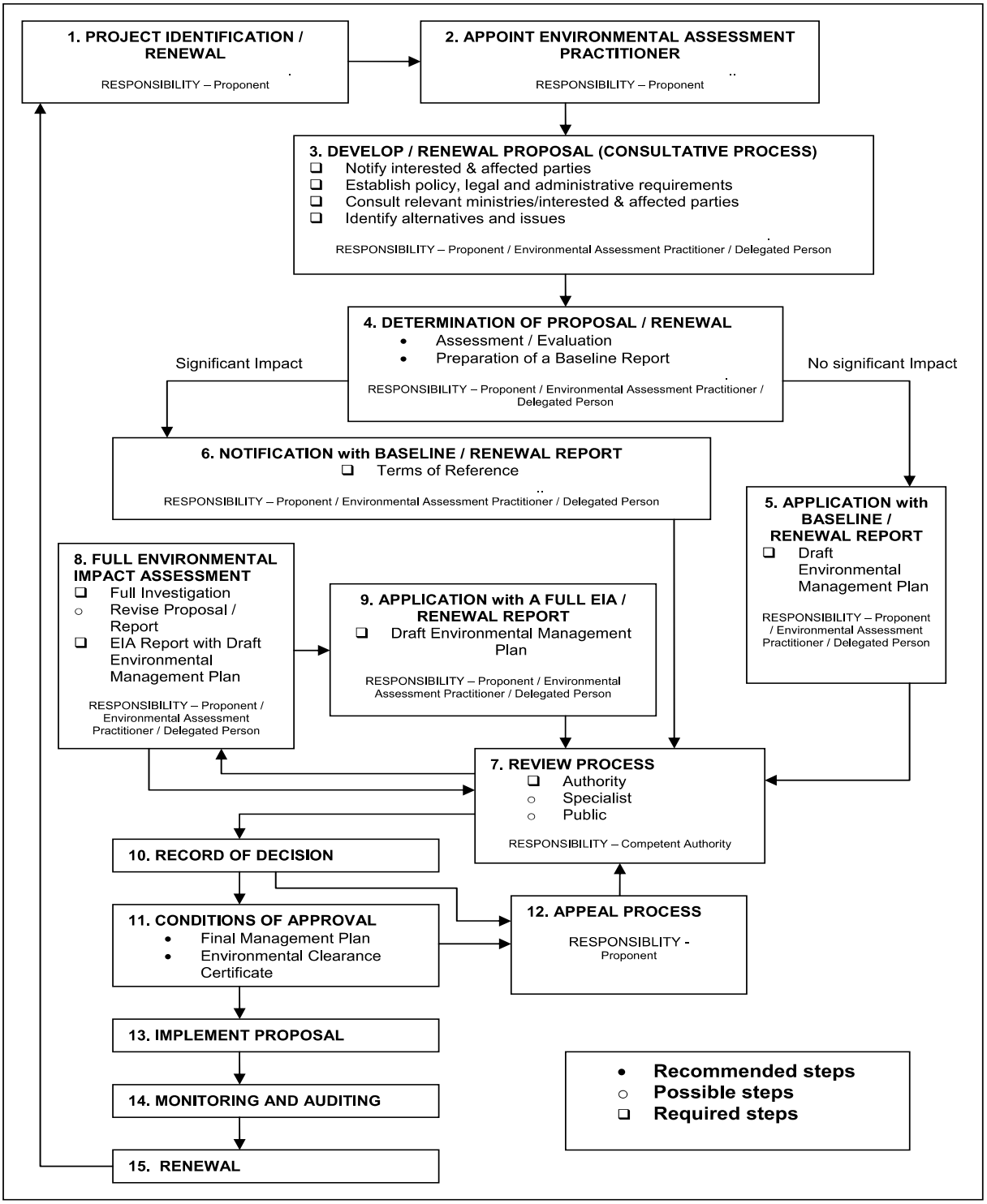
(c) any road provided for this purpose shall be ripped up in such a way that it cannot be washed away should the owner, lessee or occupier so desire;

(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 not available specifically for Karibib, but relevant data was obtained from surrounding areas.

7.1 Climate

The available data are used to describe the climate averages of Karibib.

7.1.1 Rainfall and Temperature

In Karibib, the summers are long, hot, and partly cloudy; the winters are short, cool, windy, and clear; and it is dry year-round. Over the course of the year, the temperature typically varies from *8°C* to *34°C* and is rarely below *4°C* or above *38°C*.

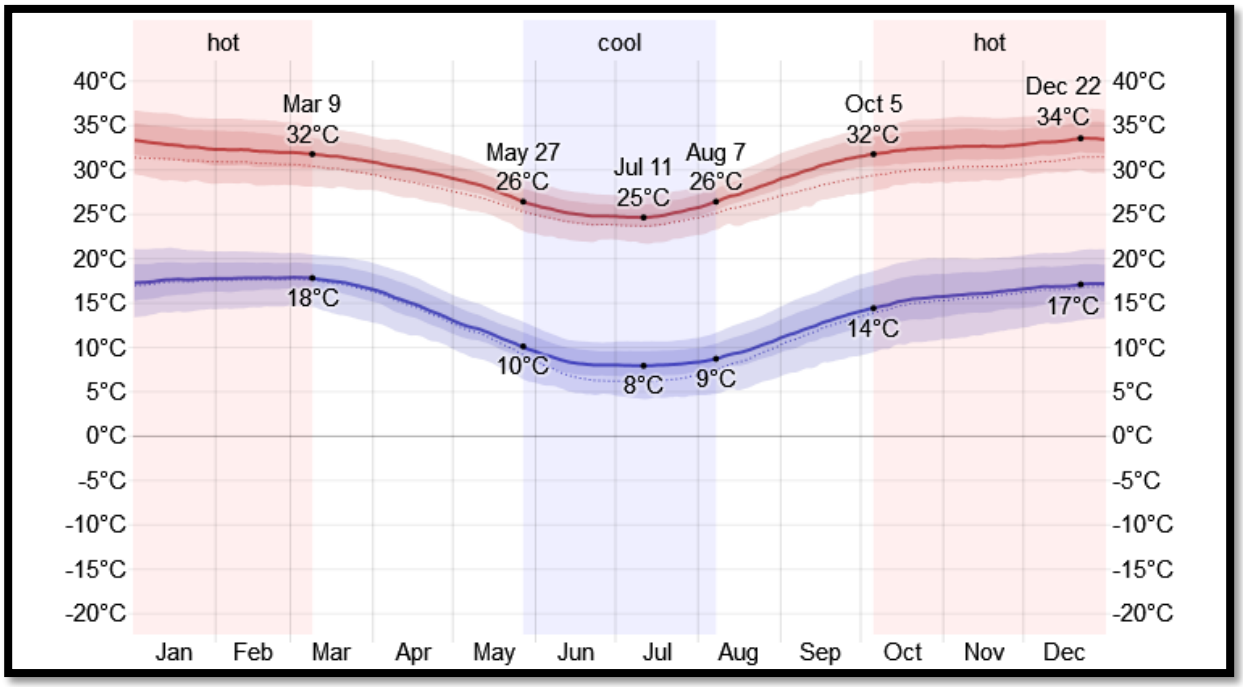


Figure 3: Average temperature of Karibib

A wet day is one with at least 1.00 millimeters of liquid or liquid-equivalent precipitation. The chance of wet days in Karibib varies throughout the year.

The wetter season lasts 2.9 months, from January 4 to April 2, with a greater than 13% chance of a given day being a wet day. The month with the most wet days in Karibib is February, with an average of 6.8 days with at least 1.00 millimetres of precipitation.

The drier season lasts 9.1 months, from April 2 to January 4. The month with the fewest wet days in Karibib is August, with an average of 0.0 days with at least 1.00 millimetres of precipitation.

Among wet days, we distinguish between those that experience rain alone, snow alone, or a mixture of the two. The month with the most days of rain alone in Karibib is February, with an average of 6.8

days. Based on this categorization, the most common form of precipitation throughout the year is rain alone, with a peak probability of 26% on February 17.

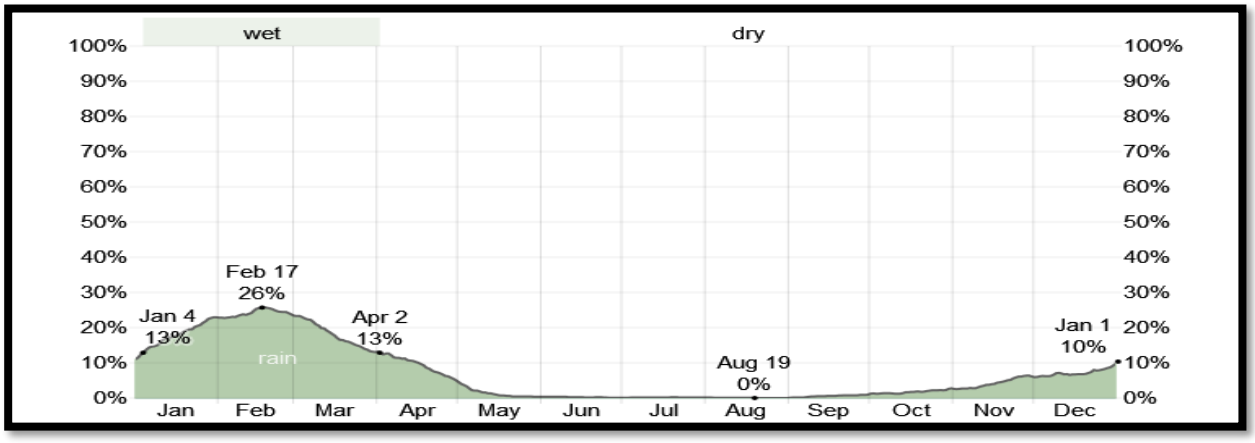
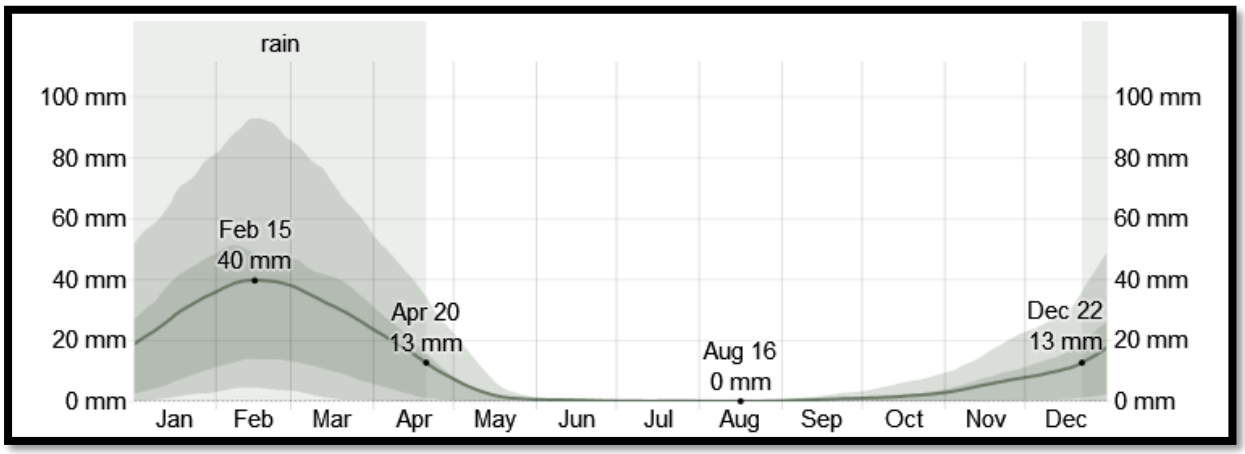


Figure 4: Daily chances of Precipitation in Karibib

To show variation within the months and not just the monthly totals, we show the rainfall accumulated over a sliding 31-day period centered around each day of the year. Karibib experiences some seasonal variation in monthly rainfall.

The rainy period of the year lasts for 4.0 months, from December 22 to April 20, with a sliding 31-day rainfall of at least 13 millimeters. The month with the most rain in Karibib is February, with an average rainfall of 40 millimeters.

The rainless period of the year lasts for 8.0 months, from April 20 to December 22. The month with the least rain in Karibib is August, with an average rainfall of 0 millimeters[2].



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall	28.3mm	39.8mm	31.5mm	15.8mm	2.0mm	0.4mm	0.1mm	0.0mm	0.6mm	1.7mm	5.3mm	10.8mm

Figure 5: Average Monthly Rainfall in Karibib

[2] https://weatherspark.com/y/78286/Average-Weather-in-Karibib-Namibia-Year-Round#Sections-Precipitation

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.

7.2.3 Wind

This section discusses the wide-area hourly average wind vector (speed and direction) at 10 meters above the ground. The wind experienced at any given location is highly dependent on local topography and other factors, and instantaneous wind speed and direction vary more widely than hourly averages.

The average hourly wind speed in Karibib experiences significant seasonal variation over the course of the year.

The windier part of the year lasts for 6.0 months, from May 17 to November 18, with average wind speeds of more than 7.7 knots. The windiest month of the year in Karibib is July, with an average hourly wind speed of 9.0 knots.

The calmer time of year lasts for 6.0 months, from November 18 to May 17. The calmest month of the year in Karibib is March, with an average hourly wind speed of 6.1 knots.

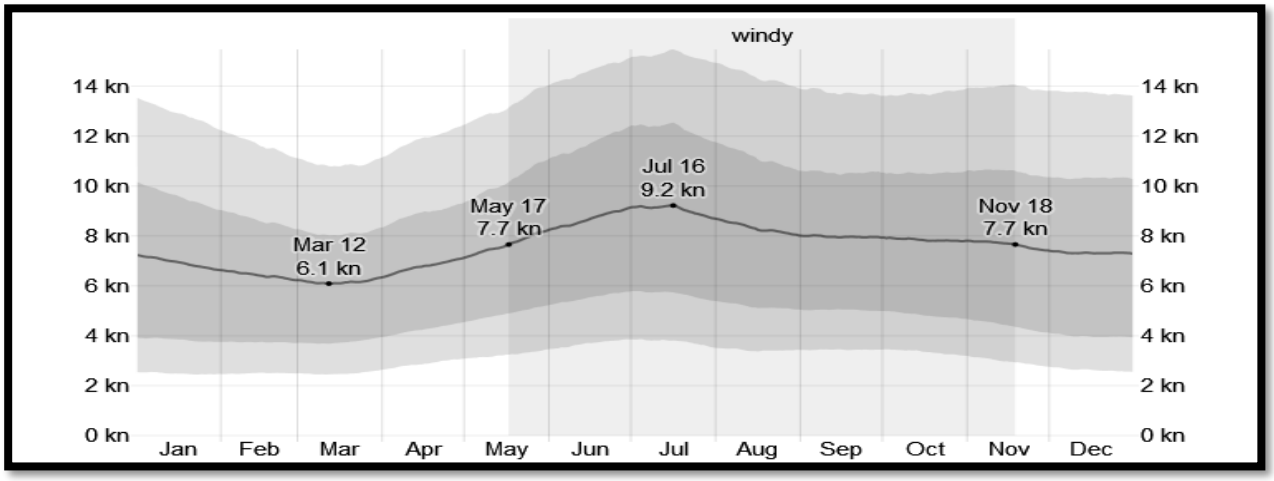
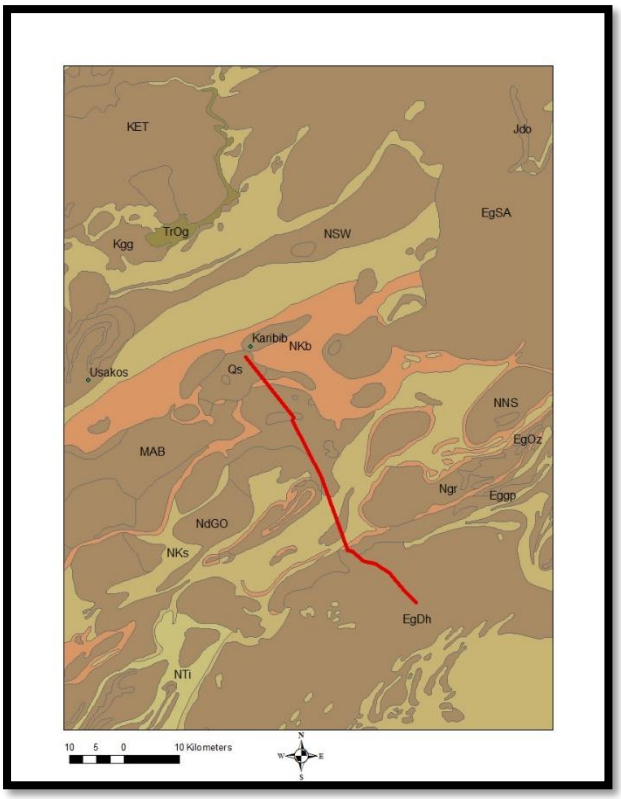


Figure 6: Average Wind Speed in Karibib

7.3 Topography

The towns of Karibib and Otjimbingwe lies on the edge of the Central – Western Plains stretching from the coast to about 450 km to the east which connects the Escarpment. The escarpment divides the much of the country into two general landscapes: the low lying coastal plain (Karibib), and the higher inland plateau (Khomas Hochland to the east of Karibib). Heights vary between 1150 and 1450 meters around the proposed site. The topography from Karibib to Otjimbingwe has a gentle downward slope to the south and ends at the Swakop River that flows through the town of Otjimbingwe.

7.4 Geology



The road from Karibib to Otjimbingwe traverse over very diverse geological features. The general geology of the study area consists of crystalline marble, schist, amphibolite and quartzitic rocks of the Karibib Formation in the Swakop Group of the Damara Sequence. In some places, these lithologies are intruded by granite of the Salem Suite, consequently introducing secondary discontinuities and compartmentalizing lithological continuity (Miller 1992). There are mainly four distinct Lithcodes found from Karibib to Otjimbingwe and are depicted in the following Table 4: Lithcode traversing from Karibib to Otjimbingwe:

Figure 7: Geology of the project area

Lithcode	Age	Sequence	Rock types
QS	Quaternary	Surficial deposits	Alluvium, sand, gravel, calcrete
NdGO	Namibian	Damara	Diorite, diorite gneiss
Nk	Namibian	Damara	Mica schist, minor quartzite, graphitic schist, marble
EgDh	Cambrian	Post-tectonic Damara granites	Post-tectonic, locally pegmatitic or migmatitic, monzogranite

Table 4: Lithcode traversing from Karibib to Otjimbingwe

7.5 Soils

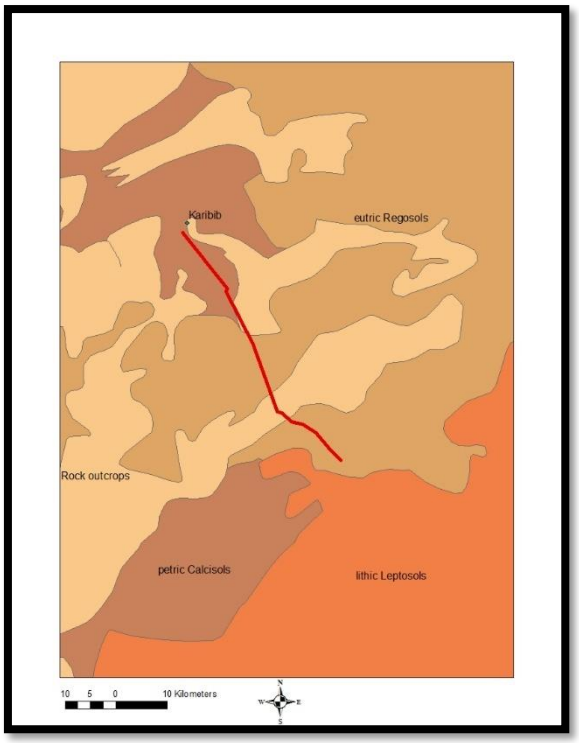


Figure 8: Soils of the project area

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

Petric Calcisols 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.

Rocky outcrops are dominant especially on the southern part of the road closer to Otjimbingwe. These outcrops are granite and marble dominating.

Eutric Regosols are medium or fine-textured soils of actively eroding landscapes, the thin layers lying directly above the rock surface from which they are formed. Although not as shallow as the Leptosols, these soils never reach depths of more than 50cm. These soils are especially susceptible to erosion where there is any degree of slope. Vegetation cover on these soils is very scarce due to a lack of nutrient and water holding capability.

Lithic 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 course 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.

7.6 Land Use

The proposed project area is located in commercial and communal agricultural land and the project area is predominantly used for livestock farming. Tourism plays a secondary economic role in this area and therefore some land use changed from agricultural to tourism or a combination of both. Mining is also a very important land use in this area. Various mining licenses and EPLs have been registered in the project area.

7.7 Surface and Groundwater

The project lies in the **Khan** and **Swakop** catchment areas. In the very arid conditions of western Namibia, river flows are predominantly episodic and are driven by discrete though erratic rainfall events. River flows are mostly short-lived flash floods. The nature of the run-off created by high intensity, but short rainfall events is an important characteristic to consider in the storm water design for the facilities. This characteristic is further enhanced by the topography of the specific area where rock outcrops occur frequently, and the landscape shows significant dissection and erosional cutback. Significant erosion in the past has resulted in landscapes of low gradient hills with a typical dendrite drainage pattern in the plain areas.

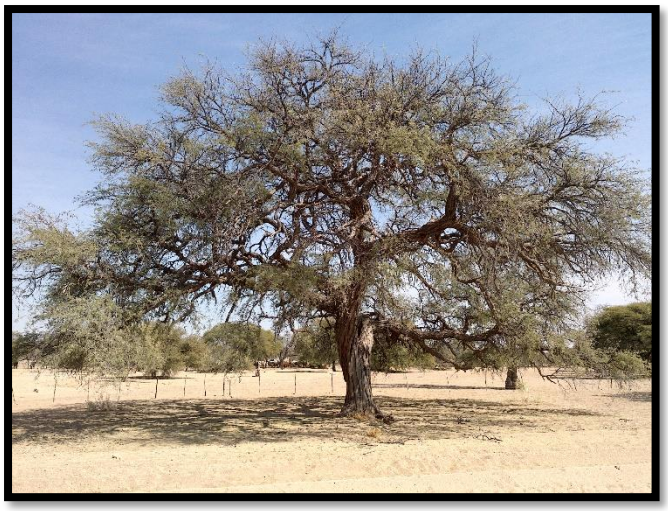
7.8 Fauna

Fauna that typically occur nomadically in the area are Duiker (Sylvicapra grimmia), Kudu (Tragelaphus strepsiceros), Mountain Zebra (Equus zebra zebra), Oryx (Oryx gazella), Springbok (Antidorcas marsupialis), and Steenbok (Raphicerus campestris). Signs of small mammals such as suricate (Suricata suricatta) or ground squirrel (Xerus inauris) were detected on previous site visits in the area.

7.9 Flora

The area is characterised by sandy material derived from several sources. The soil has a strong loamy component and a relatively dense woody vegetation cover. Dominant species are *Acacia reficiens*, but notable other species are *A. erioloba* (closer to river), *A. luederitzii*, *Maerua schinzii*, and *A. senegal*.

Slopes between 1° and ~5°, with a gravelly surface. Gravel consists of various types, much of it coated by calcareous material, probably derived from erosion of marble and granite outcrops in vicinity. Some areas have solid calcrete banks. Dominant species are *Acacia senegal* and, to a lesser extent, *A. reficiens*, with many *Commiphora tenuipetiolata*, some *A.*



erubescens, *Boscia foetida*, *Catophractes alexandri* and many bulb species (for instance an unknown *Ledebouria* sp.)[3].

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), and Common finger grass (Digitaria eriantha).

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

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.

7.13 Socio-economic and historic background

Both towns (Karibib and Otjimbingwe) influenced by this project is situated in the Karibib Constituency situated in the in the Erongo Region of Namibia.

It had a population of 13,320 in 2011, up from 12,084 in 2001. The district capital is the town of Karibib. As of 2020 the constituency had 9,617 registered voters. The labour force (15+ years) stood at 76%, of which 41% were unemployed up from 29% in 2001[4].

[3] Curtis and Mannheimer. 2005. Trees Atlas of Namibia. Windhoek. NBRI

[4] 2011 Erongo Census Regional Profile. NSA

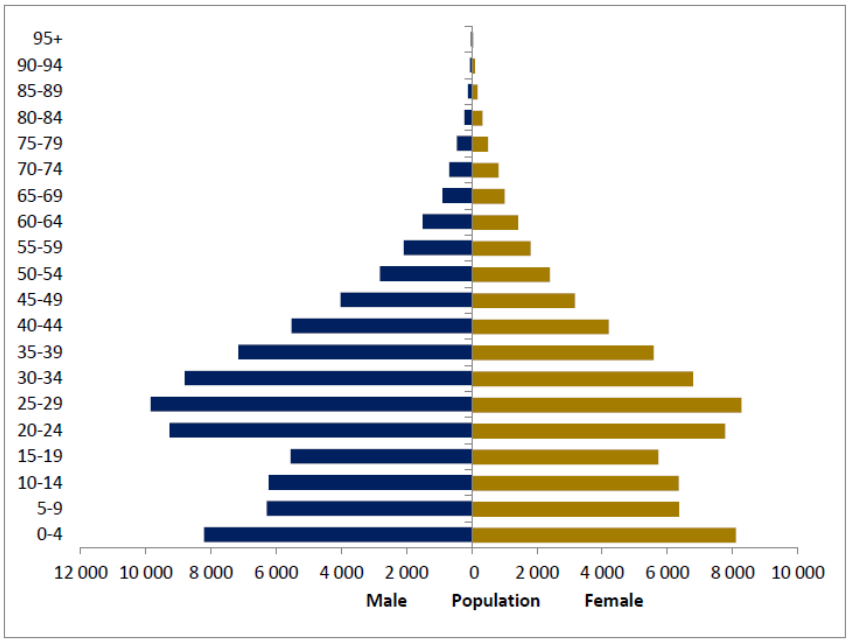


Figure 9: Population pyramid Erongo

Figure 9 presents the population pyramid for urban areas in five-year age-groups. The pyramid resembles the shape of the regional pyramid. The pyramid is bulky in the middle and has a relatively broad base indicating that urban areas had a large proportion of a working-age population (between 15-59 years of age) and a younger population. The pyramid has a narrow apex indicating that urban areas had a much smaller proportion of the region's elderly people. On the other hand, the rural pyramid has a broad base indicating a young population; it also appears bulky in the age group 50-74 indicating a large proportion of this age group, although its apex is not as narrow as the apex of the urban pyramid.

The main industry for employment in the Region is manufacturing (13.8%) followed by mining and quarrying (11.7%), then agriculture, forestry and fishing (11.5%). Remediation activities, information and communication, as well as real estate make up about less than 1 percent of the work force.

Administration, education, human health and social work activities were clearly the domain of women, while men predominantly worked in mining, construction and transport services.

The history of Karibib and surrounds may be found in the National Archives of Namibia, a summary of which has been provided by Kutzner (undated). A brief overview follows:

The earliest settlers to the area were missionaries who arrived in Otjimbingwe in 1849. In 1855, rich copper deposits were found in the Khomas highlands, and offices were established in Otjimbingwe, to exploit the deposits at the Matchless Mine, which then were transported with ox-wagons from there to Walvis Bay. By 1860 the mine closed down and sold its buildings. They were later used by the missionaries.

Karibib originated around a waterhole belonging to the West-Hereros. By the time the railway from Swakopmund to Windhoek had reached Karibib in 1900, the government of the day moved the district council from Otjimbingwe to Karibib. Once the railway construction activities had passed the town towards Windhoek, economic activity declined.

A few years later, when gold was discovered, mining activities revived the town. The Navachab Goldmine is situated south of Karibib. In open-cast mining, some 5 000 tons of gold-rich ore is extracted there daily.

Karibib is also known for the high-quality marble it produces. Black marble is still being mined at the Karibib quarry and exported worldwide. Local people complain about the dust generated there, creating a white coat of fines on the surrounding vegetation and buildings.

Approximately 1000 small-scale miners are prospecting the Karibib region for semi-precious stones; mainly amethyst, tourmaline, aquamarine and quartz (NRC, 2006). Some of these minerals are sold at the Henckert Tourist Centre in Karibib Main Street.

8. 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 Tulipamwe 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, Daily Sun and Algemeine Zeitung on two separate occasions:

15th September 2021 in the Republikein, Daily Sun and Algemeine Zeitung, and;
22nd September 2021 in the Republikein, Daily Sun and Algemeine Zeitung.

The public consultation meetings were scheduled for the following date and time:

Date:	5th October 2021
Time:	10:00
Venue:	Otjimbingwe Community Hall

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

PROOF OF PLACEMENT OF NOTICES

Adverts – 15 September 2021

Namibian Sun

TODAY | INMATES SQUEEZED INTO OVERCROWDED CELLS- PAGE 4

Tells it all

MASSIVE LOSSES ANTICIPATED

SME Bank depositors still licking their wounds

A whopping 23 259 claims had been made against the bank, to the combined value of over N$1 billion.

Tragedy strikes as boy (12) drowns in Goreangab Dam

Send vaccines to Africa- AU says

Urgent need to catch up in vaccinating

Republikein Sun Die Namibier Allgemeine Zeitung

Market Watch

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT

DOCTORS IN DEBATE

TOPIC: DISSECTING THE THIRD WAVE: ARE WE BETTER EQUIPPED FOR COVID'S FOURTH ONSLAUGHT?

LIVE STREAMING

SA's regulator approves Pfizer vaccine

WWW.ONEUPTWO.COM


MITTWOCH, 15. SEPTEMBER 2021

AZ Allgemeine Zeitung

SEIT 1916 · 105. JAHRGANG, NUMMER 176 · ISSN 1560-9421 · 7.00 N$

AKTUELL MITTENDRIN FÜR DICH

Korridor – Eine Studie zeigt, dass der Wachstumskorridor durch die Sambesi-Region der Lokalbevölkerung kaum zugute kommt. Seite 3

Afrika-Seite – Mehr über das Afrikanische Forum zur Grünen Revolution und zu aggressiven Schimpansen lesen sie auf Seite 4.

NMH-Beilage – Das Bildungsprogramm der NMH wird fortgesetzt. Die Beilagen der Klasse 1: Woche 21 & 22 sind nun bei den Straßenverkäufern erhältlich.

VACCINATION STATISTICS

12-JÄHRIGER SCHÜLER IST IM GOREANGAB-DAMM ERTRUNKEN

Impfung ist „noch" freiwillig

Die Freiheit einer Person unterliegt „gewissen rechtlichen Einschränkungen"

Obwohl Namibia noch weit vom Ziel entfernt ist, bis März 2022 rund 60 Prozent der Bevölkerung vollständig gegen das Coronavirus geimpft zu haben, bleibt die Impfung in Namibia – zumindest vorläufig – freiwillig. Das betonte der Präsident gestern, obwohl einige Firmen die Impfpflicht eingeführt haben.

Von Erwin Leuschner
SWAKOPMUND/WINDHOEK

Wie erwartet, stand gestern das Thema Impfung bzw. Impfpflicht im Mittelpunkt des jüngsten COVID-19-Briefings, das Präsident Hage Geingob im Staatshaus in Windhoek gehalten hat. Angesichts rückläufiger Infektionszahlen kündigte Geingob einige Lockerungen der Auflagen (bis 15. Oktober) an. Wesentlichste Änderungen: die nächtliche Ausgangsbeschränkung wurde um eine Stunde verlängert und beginnt um 23 Uhr (bis 4 Uhr), derweil die Anzahl zugelassener Personen bei öffentlichen Veranstaltungen auf 150 hochgeschraubt wurde.

Obwohl der Präsident in seiner vorbereiteten Rede sagte, dass die Impfkampagne „erfreuliche Fortschritte" mache, gab er zugleich Statistiken bekannt, die das Gegenteil beweisen. Demnach hat bis dato 15,1 Prozent der Bevölkerung eine erste Dosis eines COVID-19-Impfstoffs bekommen, derweil lediglich 9 Prozent zwei Dosen erhalten haben. „Dies ist weit entfernt von unserem Ziel, 60 Prozent der Gesamtpopulation bis März 2022 zu impfen und somit die Herdenimmunität zu erreichen", sagte der Präsident, der Namibier „inständig bat", sich impfen zulassen.

Geingob machte aber deutlich, dass „bis heute, die Impfung freiwillig bleibt". Damit reagierte er auf „Diskussionen auf verschiedenen Plattformen über die Impfpflicht". In diesem Zusammenhang erwäge die Regierung „sämtliche verfügbare Optionen", um das Volk zu schützen, COVID-19 zu überwinden und „unser Land zur Normalität zurückzuführen" …

Tun Sie das Richtige, lassen Sie sich impfen
NG-KIRCHE EROS IMPFZENTRUM
BUCHEN SIE EINE ABSPRACHE FÜR IHRE COVID-19-IMPFUNG UNTER BOOKINGS.MY.NA
NMH tourismus
Mehr Infos finden Sie auf Seite 1 der Market Watch

Neue Corona-Richtlinien

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2 Republikein Sun Allgemeine Zeitung — Market Watch

Urgent need to catch up in vaccinating

Send vaccines to Africa- AU says

The COVAX programme also urged rich countries that had met their domestic needs to forfeit volumes rather than administer third shots.

Rich nations would do better to send vaccines to Africa to help fight the global Covid-19 pandemic rather than hoarding them for third-dose booster shots that scientific evidence does not back, the African Union's (AU) top health official said.

Africa Centres for Disease Control and Prevention (Africa CDC) director John Nkengasong told a news conference he was baffled some rich countries were disregarding World Health Organization (WHO) advice to hold off from booster shots until more people were fully vaccinated worldwide.

"The problem we have with the third doses is, we have not seen enough science behind them," he said. "It is really confusing to me as to why we are moving towards a vast administration of the booster dose."

Wealthy countries such as Germany, France and Israel are planning to administer third shots, over concerns that immunity from the standard two-shot regimen is waning.

"We do not know at what point immunity drops to a level at which it stops offering protection," Nkengasong said. "Without that science, you'll surely be gambling."

The global programme providing Covid-19 vaccines to poor countries is on course to fall nearly 30% short of its previous goal of 2 billion shots this year, the international organisations running it said.

Needs

The COVAX programme also urged rich countries that had met their domestic needs to forfeit volumes rather than administer third shots.

Workers load South Africa's first coronavirus disease vaccine doses as they arrive at OR Tambo airport.

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT

SA's regulator approves Pfizer vaccine

DOCTORS IN DEBATE
LIVE STREAMING
TOPIC: DISSECTING THE THIRD WAVE: ARE WE BETTER EQUIPPED FOR COVID'S FOURTH ONSLAUGHT?
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Woensdag 15 September 2021
Republikein
NS7
Jou land. Jou taal. Jou koerant.
INENTINGS TEEN COVID-19
1STE DOSIS
2DE DOSIS
VERLEDE WEEK
PER MAAND
TWAALFJARIGE VERDRINK BY DAM
David Sheya (12) het Maandag in die oorloopwater van die Goreangabdam verdrink. Hy en twee maatjies het gaan swem toe die ongeluk gebeur het. Mnr. Percy Openshaw van Crisis Response International het die volgende dag, ná sowat 40 minute, Sheya se liggaam uitgeduik. Me. Tanya Roux, Openshaw en mnr. Desmond de Klerk maak hier sy liggaam toe. Lees die berig op bl. 3.
SLEGS STRAATVERKOPE
IN VANDAG SE KOERANT
» Planne vir groter winsgewendheid, volhoubaarheid
Beesboere se plan kry lyf
Die forum se sakeplan is onderskryf, terwyl die komitee opdrag gegee is om voort te gaan met sy planne om 'n "winsgewende en volhoubare beesvleiswaardeketting" te vestig.
Elvira Hattingh
Doen die regte ding en ent in
NG KERK EROS
INENTINGSENTRUM
BESPREEK JOU COVID-19-INENTING BY
BOOKINGS.MY.NA
NMH tourismus
NA BL. 2
WEBWERFKODE
5741
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Nuus ▸ 2-5 Praat Saam ▸ 6 Sport ▸ 7
2
Republikein
Sun
Allgemeine Zeitung
Market Watch
» Urgent need to catch up in vaccinating
Send vaccines to Africa- AU says
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NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT
The Roads Authority of Namibia (RA) appointed Element/Tweya Joint Venture to perform the consulting services for the following project:
Detailed Design, Tender Documentation for the Upgrading to Bitumen Standard of DR1953 (56km) Karibib - Otjimbingwe in the Erongo Region
Public Consultation Meeting
Date: 05 October 2021
Time: 10:00
Venue: Otjimbingwe Community Hall
Enviro Management Consultants Namibia
Contact: Ms. Maike Prickett or Mr. Rian du Toit
Fax: 088 626368
Email: enviromanagementc@gmail.com
SA's regulator approves Pfizer vaccine
DOCTORS IN DEBATE
LIVE STREAMING
WWW.ONEUPTWO.COM
TOPIC: DISSECTING THE THIRD WAVE: ARE WE BETTER EQUIPPED FOR COVID'S FOURTH ONSLAUGHT?
Live 16 September 2021 at 17:30 on the Facebook pages of Republikein, Namibian Sun, Windhoek Express and Allgemeine Zeitung.
Panellists
Prof Burtram Fielding, Virologist and expert on coronaviruses, University of the Western Cape
Prof Tulio de Oliveira, World-renowned bioinformatician and expert on COVID-variants, Stellenbosch University
Local frontline specialists
Moderator:
Dr Stephan van der Westhuizen

Newspaper Adverts – 22 September 2021

AZ Allgemeine Zeitung

MITTWOCH, 22. SEPTEMBER 2021

SEIT 1916 · 105. JAHRGANG, NUMMER 181 · ISSN 1560-9421

AKTUELL MITTENDRIN FÜR DICH

Verhandlung
Im Zivilverfahren gegen den mutmaßlichen Unfallfahrer Dippenaar soll ein Prozesstermin endgültig festgelegt werden. Seite 3

Inlinehockey
Bitter, sogar ärgerlich war die Niederlage im World Skate Cup. Der Erfolg der Inlinehockey-Spieler spricht für sich. Seite 5

Geschichte
Peter wird von dem starken Pferdejungen zusammengeschlagen. Eine schmerzvolle Nacht folgte. Mehr dazu auf Seite 6

IMPFZAHLEN
VERGANGENE WOCHE

Große Unzufriedenheit mit Genozidabkommen

4 Republikein Sun Allgemeine Zeitung Market Watch

Engineer Bahaa Costantine, a cancer patient. PHOTO NAMPA/REUTERS

Discouraging consumption to fight cancer

WHO recommends alcohol tax hike in Europe

Alcohol consumption is causally linked to oral cavity, pharynx, oesophagus, colorectal, liver, larynx, and female breast cancer.

The World Health Organization on Monday recommended doubling alcohol taxes in Europe as a means to prevent nearly 5 000 cancer deaths every year.

Increasing taxes on alcoholic beverages is "one of the best measures" to prevent cancer with a "potentially high impact," the WHO's European office said, adding countries like Russia and the UK would benefit most.

Alcohol consumption is causally linked to oral cavity, pharynx, oesophagus, colorectal, liver, larynx, and female breast cancer, the WHO said.

WHO said its model projections showed "an estimated 10 700 new cancer cases and 4 850 alcohol-related cancer deaths could be avoided annually in the WHO European Region by doubling current excise duties on alcoholic beverages."

This represents about six percent of new cases and deaths from alcohol-related cancers in the WHO's European region, which comprises 53 countries and territories and includes Russia and several Central Asian nations.

The WHO's regional office said it estimates that 180 000 cases and 85 000 deaths every year "were estimated to be caused by alcohol".

For the WHO, current levels of alcohol taxation remain "low" in many parts of Europe, particularly in the 27-nation European Union.

A woman in a liquor store. PHOTO NAMPA/REUTERS

> *180 000 cases and 85 000 deaths every year were estimated to be caused by alcohol.*
> WHO

Russia, the UK and Germany would save the most lives by adopting the tax measure, with 725, 680 and 525 deaths averted respectively, according to the model published in The Lancet, the British medical journal.

It said a doubling of taxes would in particular help in preventing deaths from breast cancer (1 000 deaths per year) and colorectal cancer (1 700). The WHO said 4.8 million new cases of cancer were diagnosed in Europe in 2020. -Nampa/AFP

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Detailed Design, Tender Documentation for the Upgrading to Bitumen Standard of DR1953 (56km) Karibib - Otjimbingwe in the Erongo Region

Enviro Management Consultants Namibia is appointed by Element/Tweya Joint Venture 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.

All Interested and Affected Parties (I&AP's) 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 19th of October 2021.

Public Consultation Meeting
Date: 05 October 2021
Time: 10:00
Venue: Otjimbingwe Community Hall

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

Enviro Management Consultants Namibia
Contact: Ms. Maike Prickett or Mr. Rian du Toit
Fax: 088 626968
Email: enviromanagementc@gmail.com

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22 SEPTEMBER 2021
EDITION 14 | NUMBER 180
N$5

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SPORT Mboma collecting silverware everywhere 8

OPINION Why Ngurare should save SWAPO 6

Genocide: Give to Caesar what belongs to Caesar

Six dams still more than 80% full

ELLANIE SMIT
WINDHOEK

Discouraging consumption to fight cancer

WHO recommends alcohol tax hike in Europe

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Engineer Bahaa Costantine, a cancer patient. PHOTO NAMPA/REUTERS

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A woman in a liquor store. PHOTO NAMPA/REUTERS

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LIST OF I&AP'S CONSULTED:

List of Interested and Affected Parties Consulted					
Name & Surname	**Organisation**	**Position**	**Tel.**	**E-mail**	**Means**
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Ms L Doëses	Erongo Regional Council	CRO	064 410 5700 064 410 5729	cro@erongorc.gov.na	
Honourable Melania Ndjago	**Karibib Consituency Office**	**Councillor**	**081 156 4009 081 240 3917**	**mndjago1@gmail.com**	
Mrs Ingrid Naruses	**Otjimbingwe Settlement Office**	**Admin Officer**	**081 238 1198 081 551 9851**	**narusesingrid79@gmail.com rrnaruses@erongorc.gov.na**	
Mr Timotheus Hatuikulipi	**Roads Authority of Namibia**	**Regional Representative**		**Hatuikulipit@ra.org.na**	
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Ms Esther Kaapanda Ms Esther Johannes (Secretary)	Ministry of Works and Transport Private Bag 13341 Windhoek	Executive Director	061 208 8822	Esther.Johannes@mwt.gov.na	
Mr Benetus Nangombe Ms Dorothea (Secretary)	Ministry of Health and Social Services	Executive Director		PA.ED@mhss.gov.na ED.Office@mhss.gov.na	
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Ms Ernfriede Stephanus		Regional Director	064 410 5102 064 410 5101	estephanus@erongorc.gov.na	
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Dr Herbert Schneider	**Farm Habis**	Owner	081 124 6165	herbert@farmhabis.com	
Mr Fips Ludwig	**Farm Deanib**	Manager	081 128 8934	fips@iway.na	

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

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

These comments were received during the public meeting held at Otjimbingwe Community Hall.

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
1	If you are in the design stage, why can't the road cross the rivers with bridges? There are schools and shops that cannot be reached if the river is flowing.	Gerson Naruseb	I have looked at the area together with the Roads Authority a while ago and bridges are very expensive and are omitted because of budget constraints. Maybe once construction has started you can put in a request for these bridges. We take note and will present to the Roads Authority, perhaps there is a low-cost option that can be looked at.	Peet Bezuidenhout
2	Does the local unskilled labour and SME contractors apply only to the constituency or to the region? Counterpart training?	Gerson Naruseb	The unskilled labour is people from this area. What typically happens is that a list with names is drawn up by the local leadership for people within a certain radius from the road from which the contractor can select people. Candidates will be nominated by the local leadership. The SME split is usually 50/50 for work that requires expertise for which SME's from outside may be brought in and then there is easier work for SME's which don't have much experience. Counterpart training can be recommended if there is not much experience in the area.	Peet Bezuidenhout
3	A main water pipeline is crossing the road. Could you use that water for construction?	Gerson Naruseb	Thank you. We are aware of that pipeline. We will enquire with Namwater if we may use some of the water, but their rule is that the water feed to the community may not be interrupted. Boreholes will need to be considered, but we will take all options into account.	Peet Bezuidenhout
4	In your overview you outlined the project design, I want to understand, is the road only from Karibib to Otjimbingwe or also to Wilhemstal?	Bennard Uirab	No only from Karibib to Otjimbingwe and a short section through Otjimbingwe towards Wilhelmstal up to the river. Once the tender process has been completed, we will come back here with the contractor and Roads Authority and hold a meeting with the regional and local leadership to introduce the contractor and everything will be discussed again.	Peet Bezuidenhout

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
5	When these projects take place, there is usually sandmining taking place and water is being used and usually ends in chaos because the relevant authorities and local leadership is not engaged. I want to appeal to you that the regional and local leadership is being consulted throughout this process. Contractors should not only come and start without consultation.	Bennard Uirab	We won't do sandmining. Sandmining is done under a license from MME and sand is not used to construct a road. Section 30 of the Road Ordinance says that any material needed for the construction of a road may be taken, the reason for this is that the road is a national asset and material that belongs to the government may be taken to construct a national asset. Water use is also part of Section 30 of the Road Ordinance – if there is an existing borehole and that water is used an agreement for water use must be reached, but when the contractor drills a borehole, it belongs to them but needs to be handed over to RA (or the community if agreed as such) once the project has been completed. You cannot prevent the contractor from taking material because it belongs to the government, but the contractor is guided by rules and regulations when taking the material and to rehabilitate the borrow pit once the project has been completed.	Rian du Toit
6	Local SME's in the area have no experience, is it possible to train them? We have seen SME training taking place in other regions on these road construction projects.	Daniel Mubira	Counterpart training can be recommended.	Peet Bezuidenhout
7	I would like to ask the traditional leaders and the Councillor should ensure that people from outside don't come in to take employment opportunities away from the local people.	Aluisa Gawub		
8	Boreholes, can they be drilled closer to the road so that they can be used by the communities afterwards?	Hevita	Boreholes will ideally be drilled close to the road if there is water. If there is a lot of water, they might drill a lot of boreholes along the road. If there is no water, they might have to drill the boreholes further away from the road. What usually happens if the contractor has to drill a borehole, they will engage the community so that they can come to an agreement with regards to what is going to happen with the borehole once the project has been completed.	Peet Bezuidenhout
9	I am talking about experience from a previous project, the contractors only came and started without engaging the communities. The engineers were on site before the contractors like now, but afterwards there was no	Chris Mukwa	As previously mentioned, once the contractor has been appointed, we will return to site with the contractor and introduce them to the community. The contractor will also employ a community liaison office who will be the link between the contractor and the community.	Peet Bezuidenhout

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
	community engagement. Are you going to do the same?			
10	I know you talked about it, but those bridges are a necessity, those rivers sometimes flow for months, there are farmers and school children that get cut-off and when those rivers flow. We would like to request that those bridges be built.	Chris Mukwa	We take note and will convey this to the RA.	Peet Bezuidenhout
11	To the community, SME's need to be registered, you have been made aware, now we as a community need to get our things in order.	Chris Mukwa		
12	Sandmining, there is provision in the act for sandmining and compensation of the traditional authority. That should be investigated.	Jonathan Neumbo	The material used for road construction is not sand, it falls under the Minerals Act Schedule 1 which states that material (sand, gravel, clay, rock, etc) used for road construction does not fall under the Minerals Act. There are different gravel classifications that are used for road construction G7, G6, G5, etc. Sand is used for build bricks and houses. If you want to mine sand, you need a mining license. The community is already benefitting from the road, they cannot be compensated for the material because it belongs to the government.	Rian du Toit
13	Is there a difference between tar and bitumen?	Community Member	Yes, there is. Tar is very poisonous, now we are using bitumen which is made from oil. They take out the poisonous ingredients such as diesel, petrol, paraffin, etc and then the bitumen is left.	Peet Bezuidenhout
14	I want to inform the community that I am a road board member and if the community has any suggestions like the bridges to come and share it with me so that I can convey that at the next meeting.	Mrs Shikongo		
15	I would like to empathise that the bridge towards Wilhelmstal is also very important. The settlement of Otjimbingwe stretches to where the graveyard is, it does not stop before the bridge. There is a graveyard just past the bridge and	Sebbedeus Geingob	We take note and will convey this to the RA, if they agree, we will include this in our design.	Peet Bezuidenhout

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
	when the river is in flood coffins and people cannot be transported to the graveyard for funerals.			
16	We will be very happy when this road is constructed, but the travel speed will increase on the road what about people and our cattle on the road? Will fences be put up?	Dave Kazomdjandja	Typically fences will be put next to the road, but in some instances no fences will be put up, but we will convey that the entire length of the route should be fenced.	Peet Bezuidenhout

9. 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

9.1 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 5: 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 investigators 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 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: • supporting infrastructure • housing development • extractive industries • supply industries • other?	Yes	Stimulating the tourism industry.	This might be a significant positive impact on the town of Otjimbingwe.
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.

Question - Are there features of the local environment on or around the Project location which could be affected by the Project?

- There are no areas protected by law in the vicinity of the proposed site.
- There is a low possibility of features of high historic or cultural importance.
- Surface drainage patterns will be addressed through proper engineering design.

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.

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.

Question - Are there existing land uses on or around the Project location which could be affected by the Project?

There will be few borrow pits that will be opened but will not affect the existing land uses significantly.

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.

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 between Karibib and Otjimbingwe.

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.

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.

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.

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?

Erosion might be a problem due to the soil types of the area, especially closer to Otjimbingwe.

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 with some small deviations as to ensure a proper vertical alignment.

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?

9.2 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 investigators 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

10. 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.

10.1 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.

10.2 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.

10.3 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.

10.4 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.

10.5 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.

10.6 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.

10.7 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
10.7.1 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.
10.7.2 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.	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 10.3 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.
10.7.3 HEALTH AND SAFETY	To ensure health and safety of workers and the public at all times during construction	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
		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).	
10.7.4 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	a. The main contractor's camp shall not be constructed closer than 500m from any river, stream of 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
	erosion and unnecessary vegetation destruction. Management of water (domestic and construction).	Areas to be disturbed shall be clearly demarcated, and no land outside these areas shall be disturbed or used for construction activities. 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.	The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		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.	
10.7.5 BORROW PIT MANAGEMENT AND REHABILITATION	To ensure proper soil management (combat soil erosion and promote biological activities). Preserve and manage natural vegetation. To ensure health and safety around the borrow pits (decommissioning phase). To stimulate ecological processes after	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).	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
	decommissioning (to stimulate vegetation and other biological activities). To establish borrow pits which is aesthetically pleasing after decommissioning.	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.	
10.7.6 WASTE AND POLLUTION MANAGEMENT	To avoid contribution to potential surface and groundwater pollution. To avoid contribution to potential soil pollution.	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.	Contractor will ensure the mitigation measures are enforced at his own expense.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
	To ensure that sound waste management practices are adhered to during construction.	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.
		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 is 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
		vehicles are parked. The drip trays will be cleaned every morning and the spillage handled as hazardous waste. 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. m. Accidental spills will be cleaned immediately. The contaminated soil will be suitably disposed of in a container suitable for hazardous waste. 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). 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. 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. 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. r. Bitumen cleaning pits shall be constructed that are effectively lined with an impermeable material. No leaks / seepage is allowed from these bitumen pits. 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.	
10.7.7 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.	a. All bunded 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.

10.8 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$ 30, 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.

11. CONCLUSION AND RECOMMENDATIONS

The environmental investigation to determine the sensitivity of the impacts associated with 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 bitumen 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 with few horizontal geometrical alignment adjustments. 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 bitumen 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.

REFERENCES

Germishuizen, G. & Meyer, N.L. 9eds) 2003. *Plants of southern Africa:* an annotated checklist. *Strelitzia* 14. National Botanical Institute, Pretoria.

Giess, W. 1998. *A preliminary vegetation map of Namibia*. Revised Edition. *Dinteria* 4: 5–114.

Honsbein, D., Peacocke, P.V.C., Joubert, D.F., 2009*. Incentive scheme for invader bush management*: A Cost Benefit Analysis (Part 1). Ministry of Agriculture, Water and Forestry. Windhoek, Namibia.

Mannheimer, C., Maggs-Kölling, G., Kolberg, H. & Rügheimer, S., 2008. *Wildflowers of the southern Namib*. Macmillan Namibia, Windhoek.

Mendelsohn, J., Jarvis, A., Roberts, A. & Robertson, T. 2002. Atlas *of Namibia. A portrait of the land and its people*. David Philip Publishers, Cape Town, RSA.

Mendelssohn, J. et al (2009). *Atlas of Namibia.* Ministry of Environment and Tourism. David Philip. Cape Town.

Miller,R. McG. (1992). Regional Geology Series. *The Stratigraphy of Namibia.* Ministry of Mines and Energy. Geological Survey. Namibia

Republic of Namibia, Environmental Management Act, 2007 (Act 7 of 2007)

Internet Sources

www.the-eis.com.

http://www.namibweb.com/regions.htm

www.npc.gov.na

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 steams;
- 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 than150 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: Environmentalist: _____

_____ _____

Residing Engineer / Authorized Person Land- Owner

APPENDIX C

CURRICULUM VITAE OF COMPILER

APPENDIX D

MINUTES OF THE PUBLIC PARTICIPATION MEETING

Environmental Impact Assessment for the Detailed Design, Tender Documentation for the Upgrading to Bitumen Standard of DR1953 (56km) Karibib – Otjimbingwe in the Erongo Region

Meeting Minutes

Type of Meeting:	**Public Consultation Meeting**
Venue:	**Otjimbingwe Community Hall**
Date:	**5 October 2021**
Time:	**10h15 – 11h45**

Agenda

1. Prayer – Reverend Barry Goamub
2. Welcome – Honourable Councillor Melania Ndjago
3. Project Team Introduction – Rian du Toit
4. Environmental Impact Assessment (EIA) – Rian du Toit
5. Project Scope – Peet Bezuidenthout
6. Q&A
7. Conclusion – Acting Chief Josua
8. Prayer – Reverend Barry Goamub

1. Prayer — Reverend Barry Goamub

2. Welcome — Honourable Councillor Melania Ndjago, Karibib Constituency

Welcome to the traditional leaders, the Otjimbingwe community and the delegation.
Mr Timo Hautikulipi from the Roads Authority cannot be present today due to some other commitments.
The delegation is here today to inform the community about the project by the Roads Authority of Namibia, which is to upgrade the gravel road from Karibib to Otjimbingwe to a tar road.
The delegation will be giving presentations, so let us listen to what they have to say, to understand the project background, what is being planned and the processes that need to be followed during this project. There are two groups present here today, one is responsible for the environmental section and the other for the technical and design part of the project. After the presentations we will open the floor to the attendees for questions and comments, please ask if you don't understand.

3. Project Team Introduction — Rian du Toit, Consulting Team

- Enviro Management Consultants (EMC) – Mr Rian du Toit & Ms Maike Prickett
- Element Consulting Engineers – Mr Peet Bezuidenthout

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/minismise/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.*

5. Project Scope – Technical Presentation — Peet Bezuidenhout, Consulting Team

- *Background*
    - *Roads Authority invited bids for Consultancy Services in June 2020*
    - *Awarded to Element/ Tweya Joint Venture in April 2021*
    - *Project started on 2 August 2021*
    - *Duration = 12 months*
- *Scope of Project*
    - *Environmental Impact Assessment (EIA), including Public Participation*
    - *Detail Design*
    - *Bidding (Tender) Documents*

- *Construction Phase not included in current scope*
- *Limits of the Project*
  - *Start: Immediately north of the Swakop River*
  - *End: Intersection with M0077 at Karibib*
  - *Includes section of D1967 through Otjimbingwe settlement*
- *Design Considerations*
  - *Alignment:*
    - *Only isolated horizontal alignment changes expected*
    - *Significant vertical re-alignment envisaged to overcome undulating topography*
  - *Very light traffic anticipated*
  - *Drainage:*
    - *Existing drainage structures only exist between Ozombero and Okangava*
    - *Many culverts blocked & damaged*
    - *Corrugated iron culverts to be replaced*
    - *Provision of formal drainage structures therefore major component of the design*
- *Water for construction expected to be a challenge!*
- *Materials*
  - *About 10 potential borrow areas identified (including 4 existing BPs)*
- *Social & Economic Development*
  - *Bidding (Tender) Document to specify the following:*
    - *All unskilled labour to be sourced locally*
    - *Provision will be made for significant SME participation considering the extensive drainage works anticipated*

6. Questions & Answers

Q1. Gerson Naruseb:

a. If you are in the design stage, why can't the road cross the rivers with bridges? There are schools and shops that cannot be reached if the river is flowing.

Response (Peet Bezuidenhout): I have looked at the area together with the Roads Authority a while ago and bridges are very expensive and are omitted because of budget constraints. Maybe once construction has started you can put in a request for these bridges. We take note and will present to the Roads Authority, perhaps there is a low-cost option that can be looked at.

b. Does the local unskilled labour and SME contractors apply only to the constituency or to the region? SME training?

Response (Peet Bezuidenhout): The unskilled labour is people from this area. What typically happens is that a list with names is drawn up by the local leadership for people within a certain radius from the road from which the contractor can select people. Candidates will be nominated by the local leadership.

The SME split is usually 50/50 for work that requires expertise for which SME's from outside may be brought in and then there is easier work for SME's which don't have much experience. SME training can be recommended if there is not much experience in the area.

c. A main water pipeline is crossing the road. Could you use that water for construction?

Response (Peet Bezuidenhout): Thank you. We are aware of that pipeline. We will enquire with Namwater if we may use some of the water, but their rule is that the water feed to the community may not be interrupted. Boreholes will need to be considered, but we will take all options into account.

Q2. Bennard Uirab:

a. In your overview you outlined the project design, I want to understand, is the road only from Karibib to Otjimbingwe or also to Wilhemstal?

Response (Peet Bezuidenhout): No only from Karibib to Otjimbingwe and a short section through Otjimbingwe towards Wilhelmstal up to the river.

Once the tender process has been completed, we will come back here with the contractor and Roads Authority and hold a meeting with the regional and local leadership to introduce the contractor and everything will be discussed again.

b. When these projects take place, there is usually sandmining taking place and water is being used and usually ends in chaos because the relevant authorities and local leadership is not engaged. I want to appeal to you that the regional and local leadership is being consulted throughout this process. Contractors should not only come and start without consultation.

Response (Rian du Toit): We won't do sandmining. Sandmining is done under a license from MME and sand is not used to construct a road. Section 30 of the Road Ordinance says that any material needed for the construction of a road may be taken, the reason for this is that the road is a national asset and material that belongs to the government may be taken to construct a national asset. Water use is also part of Section 30 of the Road Ordinance – if there is an existing borehole and that water is used an agreement for water use must be reached, but when the contractor drills a borehole, it belongs to them but needs to be handed over to RA (or the community if agreed as such) once the project has been completed. You cannot prevent the contractor from taking material because it belongs to the government, but the contractor is guided by rules and regulations when taking the material and to rehabilitate the borrow pit once the project has been completed.

Q3. Daniel Mubira:

Local SME's in the area have no experience, is it possible to train them? We have seen SME training taking place in other regions on these road construction projects.

Response (Peet Bezuidenhout): SME training can be recommended.

Q4. Aluisa Gawub:

I would like to ask the traditional leaders and the Councillor should ensure that people from outside don't come in to take employment opportunities away from the local people.

Q5. Hevita:

Boreholes, can they be drilled closer to the road so that they can be used by the communities afterwards?

Response (Peet Bezuidenhout): Boreholes will ideally be drilled close to the road if there is water. If there is a lot of water, they might drill a lot of boreholes along the road. If there is no water, they might have to drill the boreholes further away from the road. What usually happens if the contractor has to drill a borehole, they will engage the community so that they can come to an agreement with regards to what is going to happen with the borehole once the project has been completed.

Q6. Chris Mukwa:

a. I am talking about experience from a previous project, the contractors only came and started without engaging the communities. The engineers were on site before the contractors like now, but afterwards there was no community engagement. Are you going to do the same?

Response (Peet Bezuidenhout): As previously mentioned, once the contractor has been appointed, we will return to site with the contractor and introduce them to the community. The contractor will also employ a community liaison office who will be the link between the contractor and the community.

b. I know you talked about it, but those bridges are a necessity, those rivers sometimes flow for months, there are farmers and school children that get cut-off and when those rivers flow. We would like to request that those bridges be built.

Response (Peet Bezuidenhout): We take note and will convey this to the RA.

c. To the community, SME's need to be registered, you have been made aware, now we as a community need to get our things in order.

Q7. Jonathan Neumbo:

Sandmining, there is provision in the act for sandmining and compensation of the traditional authority. That should be investigated.

Response (Rian du Toit): The material used for road construction is not sand, it falls under the Minerals Act Schedule 1 which states that material (sand, gravel, clay, rock, etc) used for road construction does not fall under the Minerals Act. There are different gravel classifications that are used for road construction G7, G6, G5, etc. Sand is used for build bricks and houses. If you want to mine sand, you need a mining license. The community is already benefitting from the road, they cannot be compensated for the material because it belongs to the government.

Q8. Community Member

Is there a difference between tar and bitumen?

Response (Peet Bezuidenhout): Yes, there is. Tar is very poisonous, now we are using bitumen which is made from oil. They take out the poisonous ingredients such as diesel, petrol, paraffin, etc and then the bitumen is left.

Q9. Mrs Shikongo

I want to inform the community that I am a road board member and if the community has any suggestions like the bridges to come and share it with me so that I can convey that at the next meeting.

Q10. Sebbedeus Geingob:

I would like to empathise that the bridge towards Wilhelmstal is also very important. The settlement of Otjimbingwe stretches to where the graveyard is, it does not stop before the bridge. There is a graveyard just past the bridge and when the river is in flood coffins and people cannot be transported to the graveyard for funerals.

Response (Peet Bezuidenhout): We take note and will convey this to the RA, if they agree, we will include this in our design.

Q11. Dave Kazomdjandja:

We will be very happy when this road is constructed, but the travel speed will increase on the road what about people and our cattle on the road? Will fences be put up?

Response (Peet Bezuidenhout): Typically fences will be put next to the road, but in some instances no fences will be put up, but we will convey that the entire length of the route should be fenced.

Q12. Community Member

When will the construction start? We have been waiting for this road for a very long time, people are frustrated.

Response (Peet Bezuidenhout): The earliest that construction can start is possibly at the beginning of 2023, after this current phase has been concluded in August 2022 and the RA has been able to allocate funds.

7. Conclusion — Acting Chief Josua

8. Prayer — Reverend Barry Goamub

End of meeting 11:45

ATTENDANCE REGISTER

DATE: 05/10/21 VENUE: Otjimbingwe

PROJECT: DR1953 - Karibib to Otjimbingwe

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Moesha Uiras		081/5623571	
Hon Melania Ndjago			
Peet Bezuidenhout			
Rian du Toit			
Maike Prickett			

ATTENDANCE REGISTER

DATE: 05/10/2021 VENUE: Otjimbingwe

PROJECT: Upgrading to Bitumen Standard of DR1953 Karibib - Otjimbingwe

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ATTENDANCE REGISTER

DATE: 05/10/21 VENUE: Otjimbingwe

PROJECT: Upgrading to Bitumen Standard of DR1953 Karibib - Otjimbingwe

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ATTENDANCE REGISTER

DATE: 05/10/21 VENUE: Otjinbingwe

PROJECT: Upgrading to Bitumen Standard of DR1953 to Karibib – Otjinbingwe

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ATTENDANCE REGISTER

DATE: 08/10/21

VENUE: Otjimbingwe

PROJECT: Upgrading to Bitumen Standard of DR1953 Karibib - Otjimbingwe

NAME	EMAIL	CELL NR	SIGNATURE
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ATTENDANCE REGISTER

DATE: 06/10/21 VENUE: Otjimbingwe

PROJECT: Upgrading to Bitumen Standard of DR1953 Karibib – Otjimbingwe

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ATTENDANCE REGISTER

DATE: 05/10/21 VENUE: Otjimbingwe

PROJECT: Upgrading to Bitumen Standard of DR1953 Karibib – Otjimbingwe

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ATTENDANCE REGISTER

DATE: 25/10/21 VENUE: Otjimbingwe

PROJECT: Upgrading to Bitumen Standard of DR1253 Karibib - Otjimbingwe

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ATTENDANCE REGISTER

DATE: 08/10/21 VENUE: Otjimbingwe

PROJECT: Upgrading to Bitumen Standard of DR1953 Karibib - Otjimbingwe

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ENVIRO
ENSURING OUR TOMORROW

ELEMENT
Consulting Engineers

Tweya
CONSULTING ENGINEERS

ROADS AUTHORITY

ATTENDANCE REGISTER

DATE: 05/10/21 VENUE: Otjimbingwe

PROJECT: Upgrading to Bitumen Standard of DR1953 Karibib - Otjimbingwe

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