

ENVIRONMENTAL SCOPING REPORT

UPGRADING TO LOW VOLUME SEAL STANDARDS OF ACCESS
ROADS DR3815 (DR1004), DR3816 AND DR3824



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ACRONYMS / ABBREVIATIONS

BID	Background Information Document
DEA	Directorate of Environmental Affairs
EMCN	Enviro Management Consultants Namibia
ESMP	Environmental and Social Management Plan
IAPs	Interested and Affected Parties
MET	Ministry of Environment and Tourism

ACKNOWLEDGEMENTS

The following people are thanked for providing information presented in this report:

Coleen Mannheimer	Botanist
Tinashe Kadandara	Project Engineer

1. INTRODUCTION

Enviro Management Consultants Namibia (EMCN) has been appointed to undertake the Environmental Scoping Study for the upgrading to Low Volume Seal Standard for three access roads branching off Main Road 91: Gobabis – Aminuis - Aranos. Tulipamwe JV Consulting Engineers Namibia is the project co-ordinator and the Roads Authority of Namibia is the applicant.

1.1 Upgrading of the Access Roads

As part of the Roads Authority's mandate in support of the Government's Rural Access Roads Development Program to enhance rural accessibility, stimulate economic growth and connect the rural population to the economic belt of Namibia, the construction and upgrading to Low Volume Seal standards of three (3) access roads intersecting the MR91: Gobabis – Aminuis – Aranos road namely, DR3815 (DR1004), DR3816 and DR3824, was prioritised. The total length of the roads is approximately 96km as follows (Refer to the Locality Sketch below in Figure 1):

- DR3815 & DR1004: MR91 – Toasis 1 Village (Length = 28.2km)
- DR3816: MR91 – Corridor 13 (Length = 53km)
- DR3824: MR91 – Hugus Village (Length = 14.8km)

The works to be conducted will mainly comprise the following:

- The upgrading to low volume seal road standard of the existing gravel roads.
- The construction of prefabricated rectangular or box culverts.
- Appurtenant works such as accommodation of traffic, construction of drainage works, supply and installation of road signs, guide blocks, distance markers, road markings, shaping and landscaping, and finishing-off of the road and road reserve.

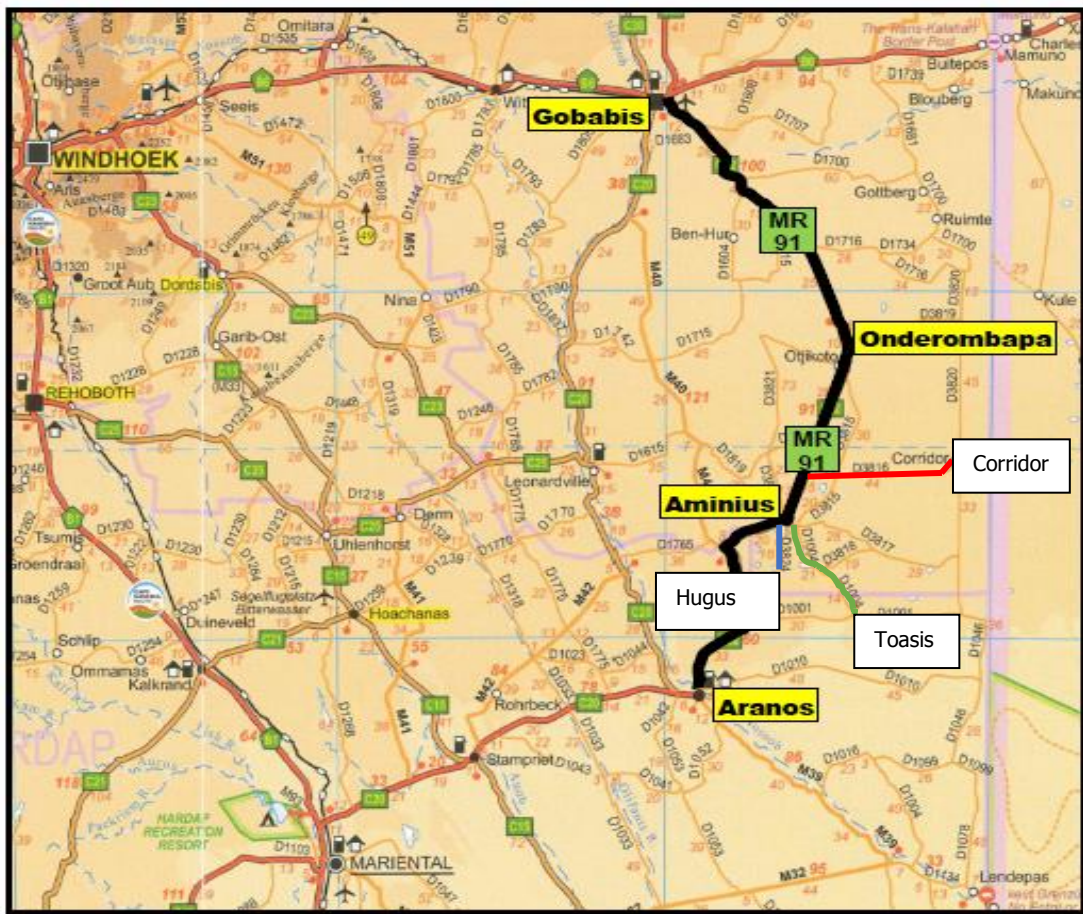


Figure 1: Route Locality Map

1.2 ACCESS ROADS ALIGNMENT AND GEOMETRICS

Low volume seal roads do not require the same geometry as full bitumen roads. Therefore, less layer works is required as well as lower volumes of material for cut and fill operations.

Furthermore, the access roads will be constructed on the existing alignment of the gravel roads, minimising the risk of re-settlement and other land / housing compensation issues.

1.3 EXISTING DRAINAGE STRUCTURES AND CULVERTS

The access roads do not cross any rivers or major water courses. The access roads have no drainage culverts and new culverts will be installed, where necessary.

2. TERMS OF REFERENCE FOR THE STUDY

This document serves as the first deliverable in terms of the Scoping Report process and aims to fulfil the requirements of the Namibia Environmental Management Act No7 of 2007 and the Environmental Regulations of 2012 and contains the following steps:

- Registration of the project with MET
- Notification and consultation of interested and affected parties
- Identification and consideration of issues and opportunities
- Consideration of mitigatory options
- Consideration of management plan options

A reconnaissance site visit, desktop study and specialist investigations were undertaken and involved the following specialist fields:

- Flora Study – Coleen Mannheimer

The environmental team worked closely together to take any environmental issues into account from the onset of the project and to ensure environmental best practice is incorporated during the planning phase of the feasibility study. Our experienced and qualified team of specialists and environmental consultants provided input at an early stage of the project to highlight issues that may arise.

3. DETAILS OF THE APPLICANT AND CONSULTANT

3.1 Details of the Applicant

Applicant	Roads Authority of Namibia
Contact Person	Mr. Bruno Mokhatu
Contact Numbers	
Telephone	+264 81 1664 953
Email:	mokhatub@ra.org.na

3.2 Details of the Environmental Consultants

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

Table 1: Capability Statement for the Environmental Project Team

Name	Role in the Project	Qualifications and Experience
Rian du Toit	Environmental Assessment Practitioner and Project Manager	M.A. Environment and Society at the University of Pretoria. Rian has more than 19 years' experience in the field of environmental management, mostly related to roads, services, transmission lines and mining right applications.

4. LEGAL FRAMEWORK

During the preparation of the Scoping Report, the following legislation was considered:

- Environmental Management Act, 2007; Act 7 of 2007 ;
- Environmental Regulations of 2012;
- Namibia's Environmental Assessment Policy, January 1995
- Roads Authority Environmental Manual

The activities listed in Table 3, as contained in Appendix B of the Republic of Namibia's Environmental Policy, may be applicable and will require Environmental Clearance.

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

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

Currently, Environmental Impact Assessments are guided and reviewed by the Directorate of Environmental Affairs (DEA) in the Ministry of Environment, 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.

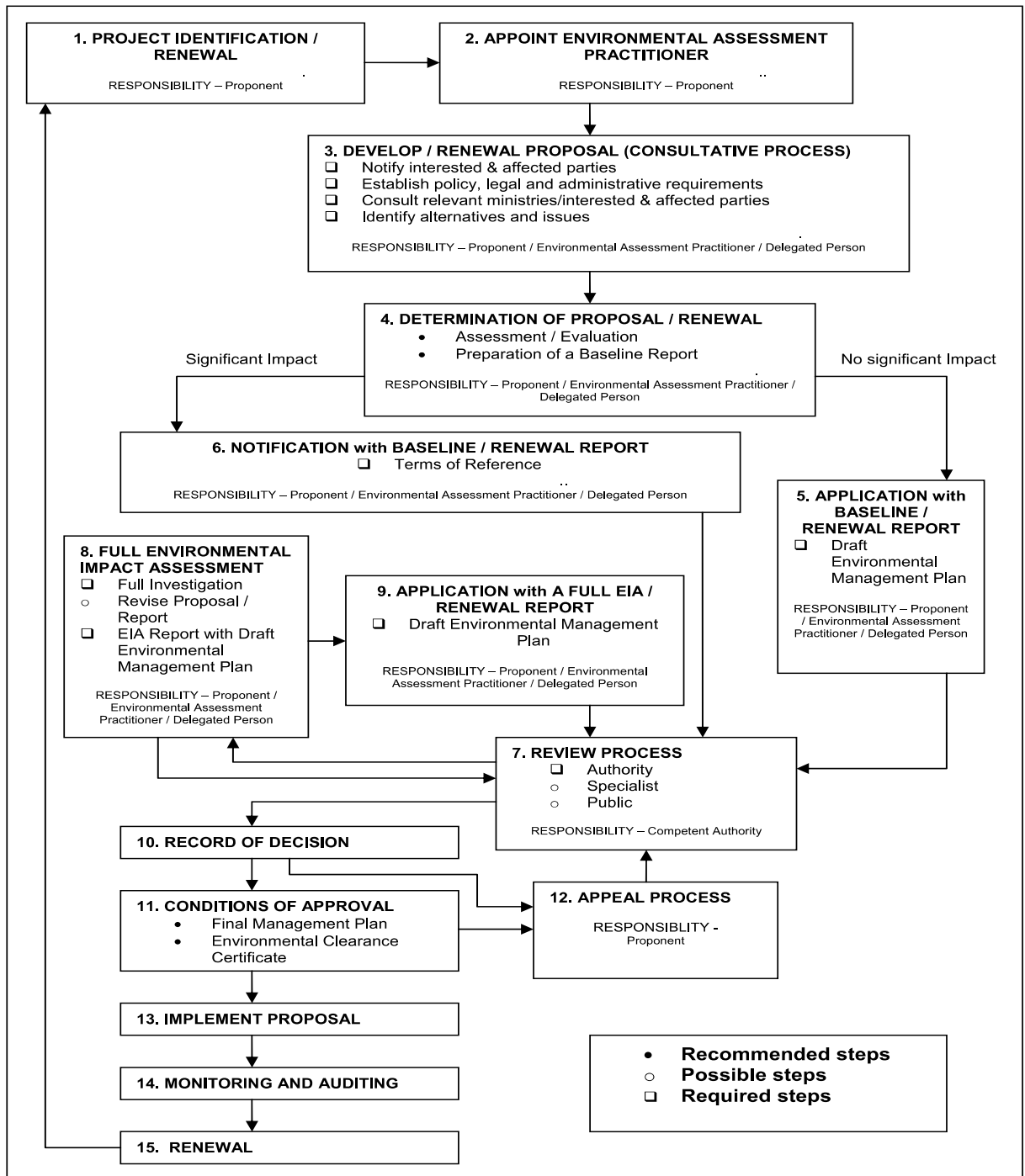
Table 3: Legislation relevant to the Project

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 " <i>cut, destroy or remove:</i> " <ul style="list-style-type: none"> • any living tree, bush or shrub growing within 100 meters from a river, stream or watercourse on land that is not part of a surveyed erf or a local authority area without a license. • Vegetation which is on a sand dune or drifting sand or on a gully unless the cutting, destruction or removal is done for the purpose of stabilizing the sand or gully. 	<ul style="list-style-type: none"> • Permits should be obtained from Department of Forestry for the removal of protected trees.

Statute	Provisions	Project Implications
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 Ordinance	Protection to tree species.	The Contractor will require a permit to remove any protected trees.
Soil Conservation Act 76 of 1969	<p>Prevention and combating of soil erosion; conservation, improvement and manner of use of soil and vegetation, and protection of water sources.</p> <p>The Minister may direct owners or land occupiers in respect of <i>inter alia</i> water courses. No Regulations exist to this effect.</p>	<p>Removals of vegetation cover to be avoided and minimized at all costs.</p> <p>Soil pollution to be avoided.</p>
Water Resources Management Act 11 of 2013	<p>Section 44 states that no person may abstract or use water, except in accordance with a license issued under this Act. Abstraction of water including open waters, aquifer, brackish or marine water.</p> <p>Section 566 states that any drilling to be conducted or enlargement of an existing borehole can only be conducted under a permit issued under the Act.</p> <p>Section 66 states that a person may not discharge any effluent directly or indirectly to any water resource on or under the ground or construct any effluent treatment facility or disposal site unless in compliance with a permit issued under Section 70 of the Act. Where "effluent" means any liquid discharge as a result of domestic, commercial, industrial or agricultural activities.</p>	<p>Obligation not to pollute surface water bodies.</p> <p>The following permits are required in terms of the Water Act:</p> <ul style="list-style-type: none"> • water abstraction permits 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.

A flowchart indicating the entire Scoping/EIA process is shown in *Figure 3*:

Figure 2: EIA Process



5. ROAD CONSTRUCTION DESCRIPTION

5.1 Typical Road Structure Cross Section of a Bitumen Road

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



5.1.1 Subbase:

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

5.1.2 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.

5.1.3 Bituminous Pavement

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

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

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

5.2 Borrow Pits

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

To achieve the abovementioned, suitable material is required from borrow pits. These pits are opened using various heavy-duty machines and the material is hauled from the pit to the required sections of the road where the material is needed. It is imperative that the material excavated complies with the engineering standards required for the construction of the road and is therefore tested on a regular basis.

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

5.2.1 Borrow Pit Locality Table

Suitable material is needed for the Subbase and Base layers during the construction of the road. Filling material is also required to ensure vertical alignment of the road is according to engineering standards required in Namibia.

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 fits 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 location (in kilometre chainage) of the proposed borrow pits to be used during the project is displayed in the following table applicable to each access road:

CONTRACT NO RA/DC-CR/12-2013

**THE UPGRADING TO BITUMEN STANDARD OF MAIN ROAD 91
GOBABIS - AMINUIS - ARANOS; OMAHEKE AND HARDAP REGIONS
UPGRADING TO LOW VOLUME SEAL STANDARDS OF ACCESS ROADS DR3815 (DR1004),
DR3816 AND DR3824**

BORROW PIT LIST

Access Road	Borrow Pit No.	Location on Road (km)	Position
DR3824	BP1	0.400	LHS
	BP2	3.400	LHS
	BP3	7.200	LHS
	BP4	12.700	RHS
	BP5	13.600	LHS
	BP6	14.800	LHS
DR1004	BP7	4.800	LHS
	BP8	12.700	RHS
	BP9	17.700	LHS
DR3816	BP10	10.900	LHS
	BP11	11.700	RHS
	BP12	12.300	RHS
	BP13	22.100	RHS
	BP14	35.600	RHS

5.3 Construction Water Requirements

There are no perennial water sources in the project area and boreholes are the only source of water. Contractors must obtain the consent of relevant landowners prior to utilizing a water source and Clause B1219 of the Project Specifications 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.

5.4 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 will 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 proximity to the existing town of Aminius. 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.

5.5 Assumptions and Limitations

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

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

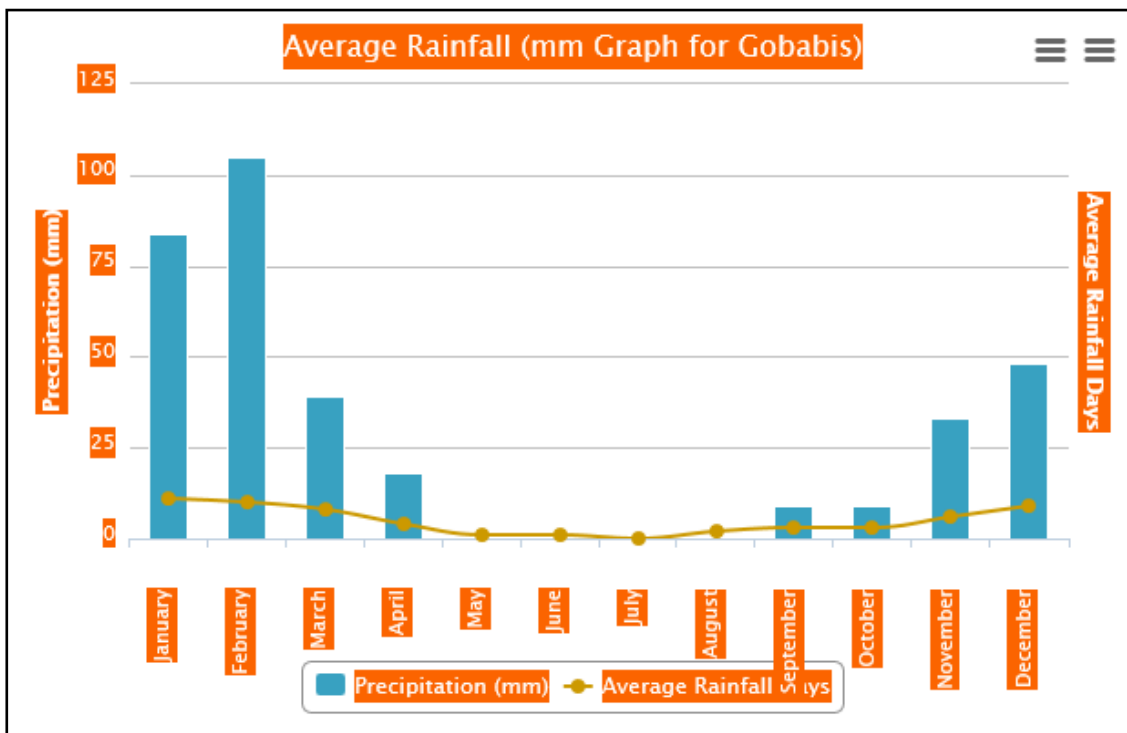
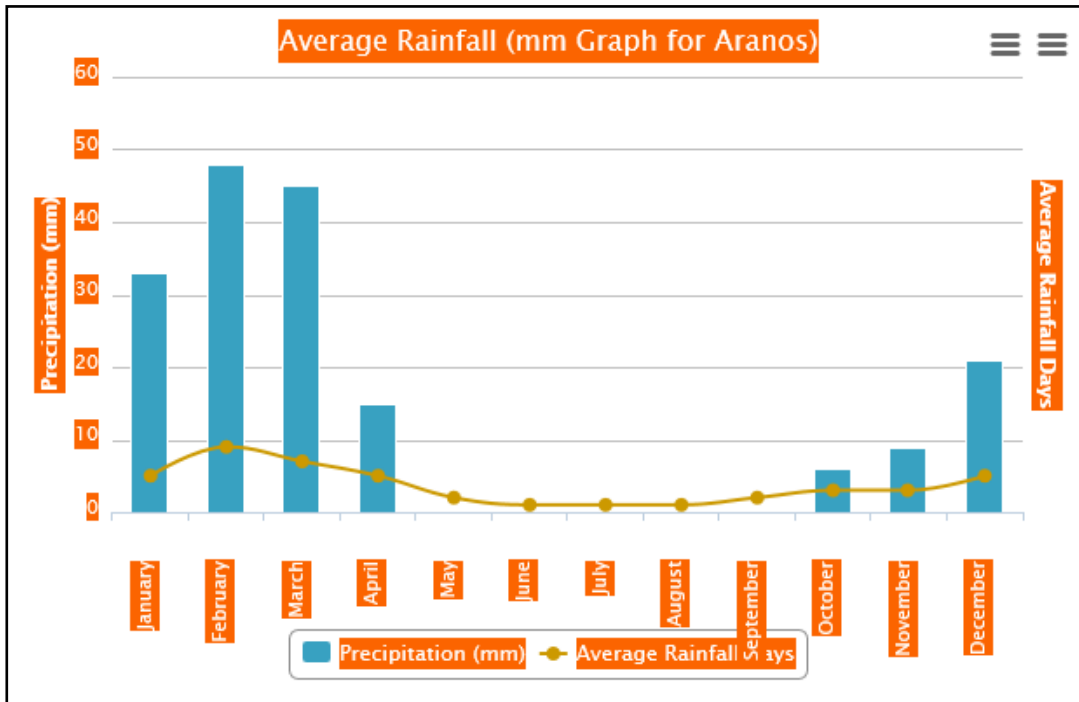
6. DESCRIPTION OF BASELINE CONDITIONS

The project area will be dealt with as a whole even though there are three access roads (in close proximity). The homogeneous nature of the Kalahari Basin influences the homogeneous ecological and geological related aspects of the bio-physical environment.

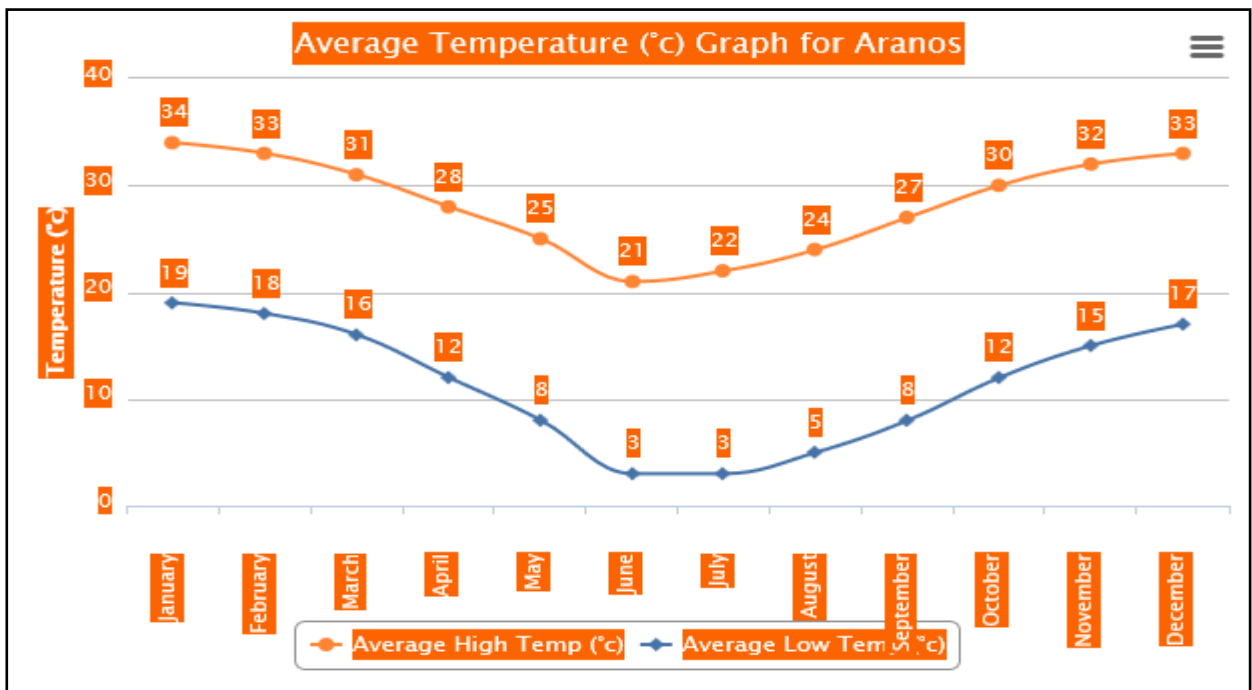
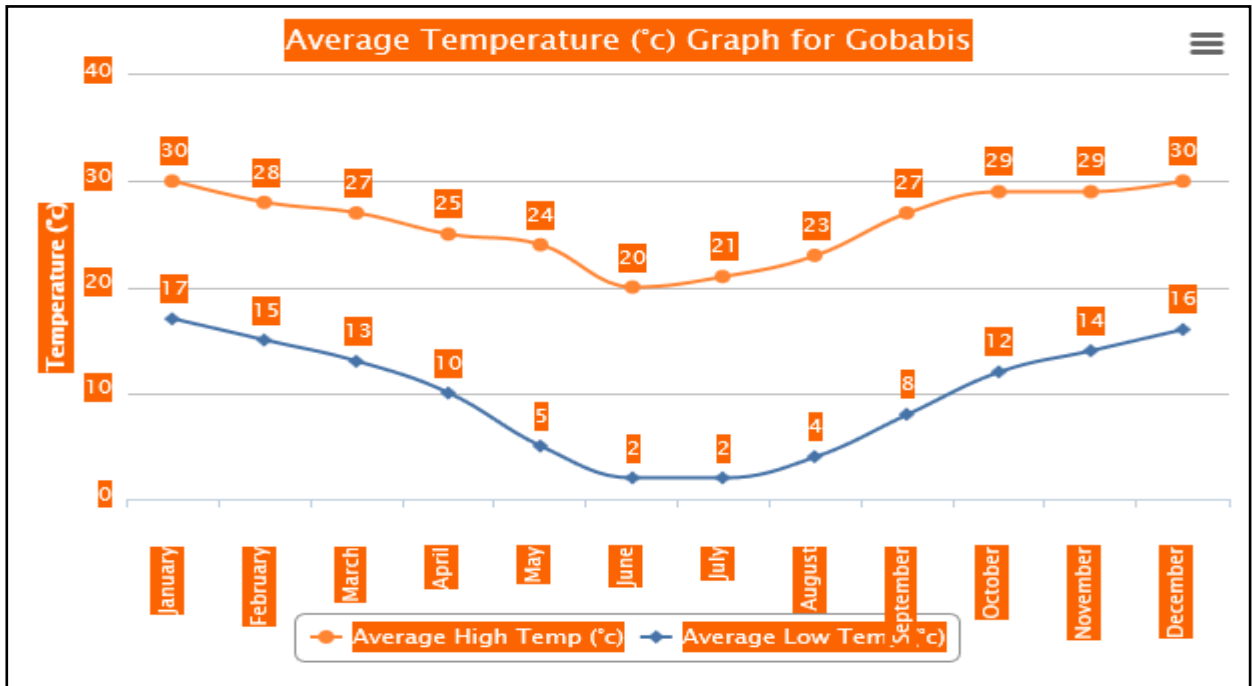
6.1 Climate

The following graphs indicate the Rainfall and Average temperatures for both Gobabis and Aranos respectively.

Rainfall data:



Temperature data:



¹ Data collected from source: World Weather Online

¹ <http://www.worldweatheronline.com/Aranos-weather-averages/Hardap/NA.aspx>

The climate at Gobabis and Aranos towns are representative of the Central Highlands of Namibia and considered to be moderate to warm summers and mild to cool winter temperatures. Temperatures are moderate during the summer months ranging between 30-34 degrees Celsius and average above 20-21 degrees Celsius annually.

From this data it is clear that average rainfall at Gobabis is higher than for Aranos. The most precipitation falls during the months of December to March.

6.2 Air quality

Existing Sources of Air Pollution

The proposed project sites are 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:

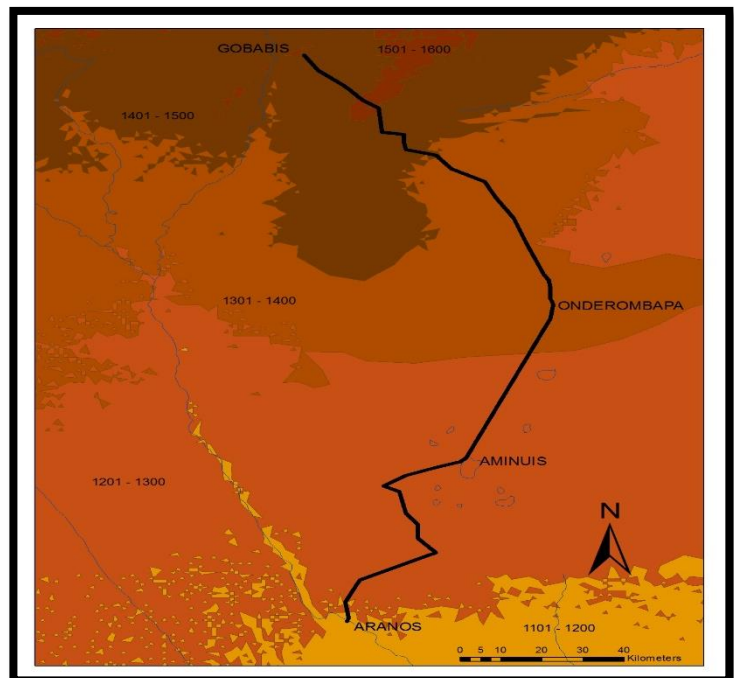
- Vehicle dust and exhaust gas emissions
- Wind-blown dust from sparsely vegetated surfaces
- Veld fires

Sensitive Receptors

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

6.3 Topography

The topography of the central eastern parts of Namibia is characterised by undulating planes and planes with very little mountainous areas and relief varying between 1500m and 1200m above mean sea-level. The gradient of the area is gentle with a downward slope from Gobabis (Khomos Hochland Plateau) towards Aranos (Kalahari Sandveld). Sand dunes are present to the south of the project but are not of great significance of this project.



6.4 Geology

The geological structures found south of Gobabis are described as the Nama Group which forms part of the Gariiep Complex. More specifically the Kuibis Subgroup (Nks) characterised by sandstone, conglomerates, shale and calcrete deposits.

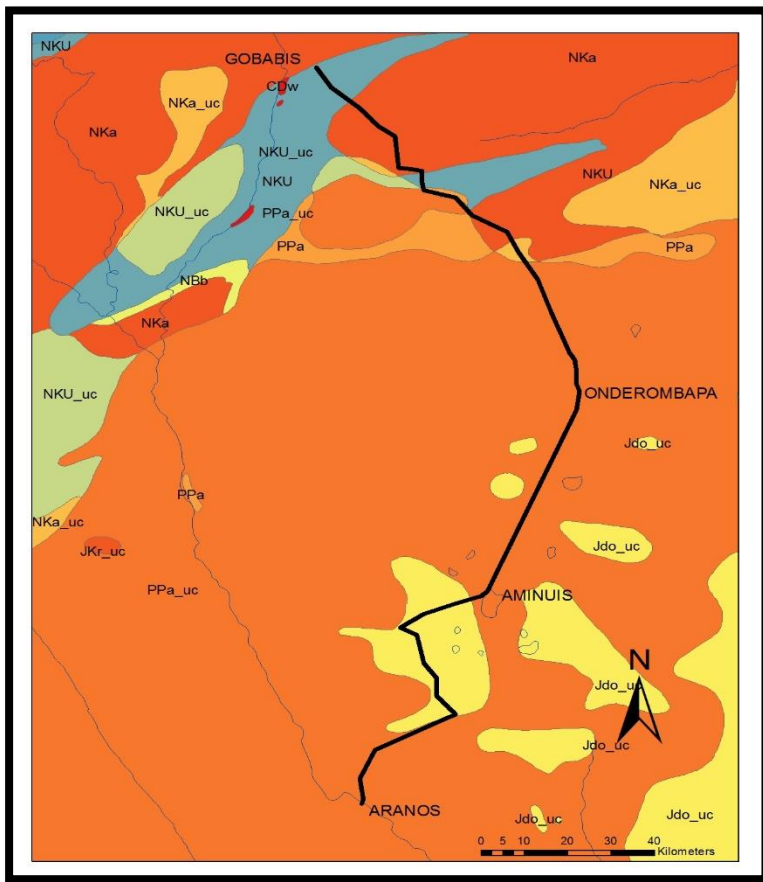
Further south towards Aranos – the geological structures are dominated by the Ecça Group - Prince Albert Formation (Pp) characterised by deposits such as shale, sand stone and mud rocks.

This results in alternating arenaceous and argillaceous sediments which are very characteristic for this sequence. However, the different facies and local environments of deposition of the Karoo sediments have resulted in highly variable stratigraphic sequences in different parts of Namibia. This is particularly occurring within the Ecça Group where thin, poorly sorted sandstones may be found in the one area while thick quartzitic sandstone of the same age occur in the neighbouring region.

The Ecça Group consists, apart from the Carboniferous Dwyka Formation (Cd) which is the oldest one in this group, of four further Permian formations which all contain sandstones, mudrocks and shales:

1. Prince Albert Formation: Pp: Shale, sandstone and mudrock
2. Whitehill Formation: Pw: Coal-bearing shale
3. Aussenkjer: Pa: Shale, limestone and siltstone
4. Amibberg: Pm: Shale, sandstone and mudrock
5. Gai-As and Omingonde: TRg/TRo: Red mudstone, siltstone, sandstone, grit, conglomerate (younger than Ecça)
6. Etjo: Je: Aeolian sandstone (younger than Ecça)

Mudrocks include, however, all sedimentary rocks which are predominantly of silt-sized or smaller particles. Detailed classification of mudrocks is difficult owing to the fine-grained nature of these rocks.



For simplicity it can be assumed, as Namibia's roadbuilder does, that mudstone or mudrock respective shale and even sandstone have all similar properties as far as road construction is concerned. For general purposes only, the terms mudrock or mudstone are used for the fissile variety and the term shale is used for the massive variety. Lundegard and Samuels point out that fissility is a weathering phenomenon and therefore cannot be used to classify rock from below the surface. They propose to use stratification or lamination rather than fissility to differentiate between shale and stone. Owing to the fine texture of mudrocks and the difficulty of disaggregating them, it is not easy to carry out grain-size distribution analyses or mineral separation analyses on them.

In Namibia Karoo-Sequence-sandstones are not used as coarse concrete aggregate, or river sand derived sandstones as fine aggregate due to their very unfavourable properties in reinforced concrete members which can lead to a serious deterioration of the concrete. In place of sandstone, Karoo dolerite is, as far as possible, used for coarse and fine concrete aggregates. The Namibian Karoo sandstones are mainly confined to the south-eastern parts of the country where very few bridge structures exist, and Keetmanshoop dolerite is easily available. Karoo baked shales ex the Dolerite Crushers at Keetmanshoop have been used for some isolated bridge structures before 1970 as for instance bridge 205 over the Wasser River and bridge 211 over the Bruckaros River on trunk road 1/3 between Keetmanshoop and Mariental. No problems with these shale aggregates on these and other structures have been experienced to date.

Karoo sandstone can be used as base course provided it has a 10 % FACT value greater than 140 kN and a soaked to dry ratio of 75 %, with the qualification if the cementing matrix is silica, the dry value may be reduced to 110 kN. Sandstones from the younger Omingonde Formation have been used for several roads in Ovamboland, as for instance for trunk road 1/11 between Ondangwa and Oshikango and main road 92 between Oshakati and Ombalantu as well as for the rehabilitation of some failed sections of trunk road 1/7 between Okahandja and Otjiwarongo in the surrounding of the Omatako

Mountains for subbases and basecourses on surfaced roads as well as for the production of surfacing chips (indurated mudrocks)(TRo on Geological Map, 1980).

Mudrocks play an important role in road building in large parts of Namibia. In the south, for instance, a not very clearly defined conglomerate between sandstones, tillites and shales has been used on isolated sections on trunk road 1/3 between Keetmanshoop and Mariental. No problems have been encountered to date except a weak section around Itzawisis which has been rebuilt during 1978. The reasons for this failure in the foundation layers of the road are not very clearly established but it is presumed that the reason lies with weak shales in the subgrade and weak subsurface drainage of the road. Karoo mudrocks and shales have also been used for basecourses on trunk road 4/1 between Keetmanshoop and Seeheim as well as trunk road ½ between Keetmanshoop and Narubis. No problems have been encountered on these sections. Karoo sandstones, shales and mudrocks are used as subgrades on many surfaced road sections in the south around Keetmanshoop and on trunk road 3/1 between Karasburg and Ariamsvley (Cd, Pp and Pw on Geological Map, 1980).

Karoo sandstones have not been used so far to a great deal as gravel wearing courses in Namibia due to their low plasticity and lack of binder in the disintegrated material except for some very isolated spots on some gravel roads in the Gobabis (main road 39: Gobabis-Leonardville), Windhoek, Okahandja and Maltahöhe districts. Karoo mudrocks and shales have, however, been used successfully on many gravel roads in the south-eastern sector of the country, as for instance on main roads 39: Gobabis-Aranos; 25: Karasburg-Aroab; 30: Keetmanshoop-Koës).

Baked shales from a dolerite quarry (Code 7 on Ann.Table 1, Jd on Geological Map, 1980) in Keetmanshoop for surfacing chips have been used before 1970. Some test sections on trunk road 1/3 south of Kalkrand revealed their unfavourable properties regarding weak adherence between the surfacing aggregate and the bituminous binder. Since then only Karoo dolerites have been used for surfacing chips and concrete aggregates.²

6.5 Soils

Namibian soils vary greatly and different forces impact on the development of the various soils. The proposed road lies in the dominant ferralitic Arenosols (high sand stratum, low nutrient content, low organic content, alkaline pH-conditions, typical for arid climate conditions with high evaporation rates and salinity) soil group (Christelis 2001). These soils are the dominant soil type in the north-eastern part of Namibia. These soils are formed from wind-blown sand and usually extend to a depth of at least one meter, with sand generally making up more than 70% of the soil. The rest of the soil comprises of clay and silt. The sandy texture allows water to drain through the soil rapidly resulting in low moisture available for plants and poor nutrient concentrations. The loose structure of the soil means there is little run-off and water erosion, but wind erosion dominates (Mendelsohn 2003).

² <http://www.klausdierks.com/Geology/5.htm>

6.6 Land Use

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

Numerous lodges were noted alongside the existing gravel road during the site visit.

6.7 Surface Water

The Nossob River dominates the surface hydrology of the area. The river runs on the western side of the existing gravel road and does not intersect with the existing road and therefore will not be affected whatsoever. Some Pans were observed during the site visit but are of little concern for the purpose of this project.

6.8 Flora

The northern part of the route runs through prime farming land, with highly productive red sandveld rangelands predominating. Usually bush encroachment is minimal. However, there is some variation moving southwards, with average plant production dropping from high to medium and variability of plant production dropping from medium to low. Carrying capacity is estimated at 30 to 40 kg per hectare throughout (Mendelsohn et al 2002). Thus forage and graze availability is regarded as good and farming risk as low to medium.

The tourism potential of this area is viewed as medium (Mendelsohn et al. 2002), and this potential probably lies mostly in hunting.

The greater area concerned falls into the Central Kalahari Acacia Tree and Shrub Savanna of Mendelsohn et al (2002) or the Camelthorn Savanna and Mixed tree and shrub savanna (Southern Kalahari) zones of Giess (1971). The general area traversed by the route is not regarded as an area of high endemism in Namibia (Maggs *et al* 1998), but protected trees are common.

Red sandveld areas of eastern Namibia are known to harbour a number of little-known and/or under collected geophytic plant species, including *Brachystelma* spp., *Ceropegia* spp., orchids (*Eulophia* spp.), and other bulbous plants such as *Ammocharis nerinoides*, *Crinum* spp., *Lapeirousia* spp., *Eriospermum* spp., *Nerine pusilla*, and *Pancratium tenuifolium*.

Many of these species are notoriously little-known, poorly collected and under-recorded. Several are endemics and some are considered rare. Protected succulent species of the family Apocynaceae, including *Tridentea marientalensis*, *Orbea lugardii* and *Piранthus decipiens*, as well as *Nananthus margaritifolius*, may potentially also be present in the general area (Bruyns 2005). None of these species that are of high conservation concern were found during fieldwork.

6.8.1 The Route of the Proposed Road Upgrade

For the purpose of this report the route has been divided into zones corresponding to changes in topography and plant species complement. These zones have been assigned letters, Zone A at the northernmost section of the route, Zone B for the remainder as far as Aranos. Throughout both of these zones scattered pan areas occur. Those are discussed later.

Zone A

Zone A (Figures 2 & 3), the northern section of the route, comprises typical Camelthorn savanna, characterised by open savanna with the trees in small groups, with *Acacia erioloba* predominating. Other common woody species there include *Terminalia sericea* (on deeper sands), *Ziziphus mucronata*, *Tarchonanthus camphoratus*, *Ozoroa paniculosa*, *Searsia ciliata* and *Grewia flava*, with occasional dense thickets of *Acacia hebeclada* subsp. *hebeclada*, *Acacia fleckii* and *Acacia mellifera* subsp. *detinens*.



Figure 2: Typical Camelthorn savanna terrain in Zone A.



Figure 3: Patches of *Terminalia sericea* woodlands on deeper sands in Zone A.

Zone B

Zone B comprises a combination of Camelthorn savanna on red dune sands interrupted by calcrete interdune valleys. The vegetation in these two habitats is very dissimilar, with that of the dune sands similar in many ways to that in Zone A and the interdune valleys with a scrubby thornbush type vegetation. They are discussed in more detail below.

Zone B1: Camelthorn savanna on dunes (Figure 4)

These dune areas are dominated by *Acacia erioloba*, which occur to a large extent as big trees. Other common woody species that occur are *Terminalia sericea* in patches, *Acacia luederitzii*, *Grewia flava*, *Tarchonanthus camphoratus* and *Ziziphus mucronata*.



Figure 4: A typical dune sand area along the southern section of the route.

A number of geophytic ("lily") species were observed in this habitat, including *Ammocharis coranica*, *Boophone disticha*, *Crinum macowanii*, *Dipcadi* spp. and *Pancratium tenuifolium*.

Two species used and valued by humans, namely *Harpagophytum procumbens* (Devil's claw, a protected but widespread species) and *Tylosema esculentum* (Marama bean, Ombanui, Elandsboointjie) occur in the road verges, especially in the southern section.

Zone B2: Thorn bush savanna on limey substrates

The low-lying calcrete habitat of the seasonally inundated interdune valleys (Figure 5 A & B) is characterised by dense stands of *Acacia nebrownii* and *Catophractes alexandri* interspersed with low thickets of *A. hebeclada* subsp. *hebeclada* and occasional individuals of the valuable and protected *Boscia albitrunca*, some of which are large by the standards of their species.



Figure 5: A = Calcrete substrate of low-lying, seasonally inundated, inter-dune area with dune area in background. B = Inter-dune valley with large *Boscia albitrunca* in the foreground.

Here too, a number of geophytic species were observed, including *Dipcadi* spp., *Nerine laticoma* and *Eriospermum roseum*, which was very common, occurring in dense stands and the range-restricted endemic *Ammocharis nerinoides* (Figure 6) found in small clusters in the vicinity of pans near Aminuis. These records constitute a range extension for this species, which to date has been found slightly further west and in a few localities in the central north.



Figure 6:
Ammocharis nerinoides, a restricted range endemic lily, was found in the vicinity of calcrete pans in Zone B.

6.8.2 Pans

None of the pans along the route were wet during the field study, and no plant species of conservation concern was found in them. They were carefully inspected for the presence of species of concern, including *Nananthus aloides* (protected) and *N. margaritiferus*, (protected, Near-Threatened), two species of high conservation concern recorded from the general area and known to occur in calcrete pan habitats.

6.9 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 or old borrow pits where material might be obtained for the construction phase of the road.

6.10 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.

6.11 Aesthetical Aspects

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

6.12 Social Context of the Road

MR91 traverses from Gobabis which is in the Omaheke Region, southwards towards Aranos which is situated in the Hardap Region. Therefore these two Regions are of importance to this Scoping study.

Access to schools, clinics and other important social and economic nodes are some of the major objectives for the construction of roads. It is therefore important to look at the social structures present in these specific regions.

Furthermore this road has the potential for stimulating secondary businesses such as tourism and transport. It is envisaged that the upgrading of this road will contribute to tourism from Botswana and South Africa. It is also foreseen that this road upgrade will stimulate bulk transport from neighbouring counties – transporting goods across Southern Africa. The upgraded road will lower vehicle operating costs from bulk transport companies, making this route viable for bulk transport services. This will also have a positive socio-economic effect of towns alongside MR91.

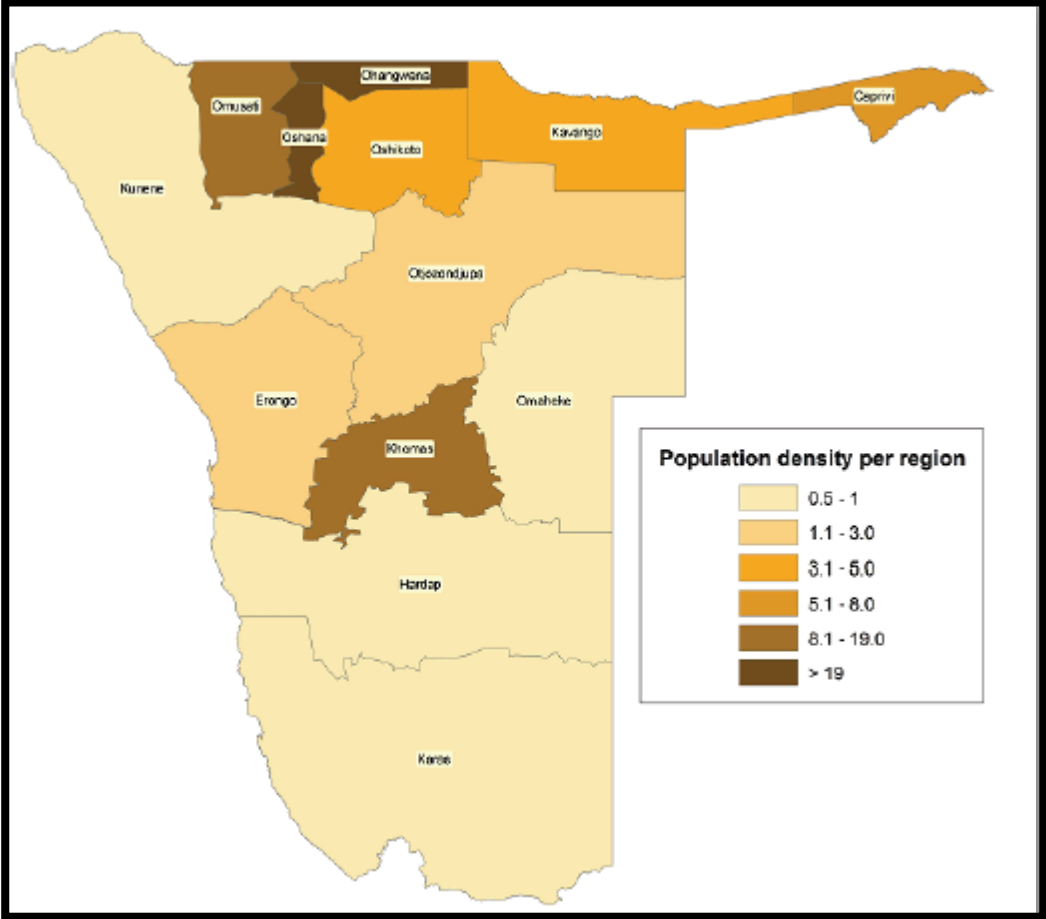
On a Regional scale the proposed roads render services to the community by allowing people to have access to modern means of transport which improves their livelihood significantly. Improved access to markets, health care services and educational facilities benefit the society as a whole as it improves the potential for economic development. Roads also contribute to a better administration of the Regions.

The distribution of people across Namibia is very unevenly, with the biggest population concentration occurring in the northern parts with the Khomas Region also densely populated. The Omaheke Region is one of the least populated areas with a population of only 71 233 of over 2.1 million people in Namibia. This means that the Omaheke region houses just less than 3.3% of the total population of Namibia. (Population and Housing Census, 2011). This Region has an estimated growth rate of only 0.5% compared to 2.5% in the 2001 Census. It is estimated that 30% of the population in this region live in urban areas and the other 70% are rural. According to the Census of 2011, 39.5% of the people in the region are unemployed.

The Hardap Region have an estimated 79 507 inhabitants which makes it the third least populated region in Namibia (Population and Housing Census, 2011) and hosts less than 4% of the total population of Namibia. This Region has an annual growth rate of 1.5% with 40% of the people living in rural areas. According to the Census of 2011, 35.2% of the people in the region are unemployed.

The density average for Namibia is 2.6 people per km², where in the Omaheke Region the population density averages 0.8 people per km². The population density for the Hardap Region is estimated at 0.7.0 people per km² (Population and Housing Census, 2011).

The following map portrays the Population Density per Region as obtained from the Census data 2011:



National urbanization is taking place at a rate of 49.6% (between 2001 and 2011) which places a huge strain on the infrastructure such as water, sewage and roads. Rural populations dropped by 1.4% from the year 2001 to 2011 (Census 2011).

The following table is an extract from the 2011 Census data indicating the population growth per Region:

Area	Census year						
	1991	2001			2011		
	Population	Population	Population increase from 1991	Percent increase from 1991	Population	Population increase from 2001	Percent increase from 2001
Namibia	1 409 920	1 830 330	420 410	29.8	2 113 077	282 747	15.4
Urban	382 680	603 612	220 932	57.7	903 434	299 822	49.7
Rural	1 027 240	1 226 718	199 478	19.4	1 209 643	-17 075	-1.4
Caprivi*	90 442	79 826	-10 616	-11.7	90 596	10 770	13.5
Erongo**	55 470	107 663	52 193	94.1	150 809	43 146	40.1
Hardap	66 495	68 249	1 754	2.6	79 507	11 258	16.5
Karas	61 162	69 329	8 167	13.4	77 421	8 092	11.7
Kavango*	116 830	202 694	85 864	73.5	223 352	20 658	10.2
Khomas	167 071	250 262	83 191	49.8	342 141	91 879	36.7
Kunene*	64 017	68 735	4 718	7.4	86 856	18 121	26.4
Ohangwena	179 634	228 384	48 750	27.1	245 446	17 062	7.5
Omaheke	52 735	68 039	15 304	29	71 233	3 194	4.7
Omusati*	189 919	228 842	38 923	20.5	243 166	14 324	6.3
Oshana	134 884	161 916	27 032	20.0	176 674	14 758	9.1
Oshikoto	128 745	161 007	32 262	25.1	181 973	20 966	13.0
Otjozondjupa	102 536	135 384	32 848	32.0	143 903	8 519	6.3

*Note: * The areas for the regions of Caprivi, Kavango, Kunene and Omusati have been adjusted between 1991 and 2001.
** Population for Erongo in 1991 excluded Walvis Bay which was not part of Namibia*

Deriving information from this table it indicates that urbanization is taking place at a rate of 4.7% in the Omaheke Region and 16.5% in the Hardap Region.

7. PUBLIC CONSULTATION PROCESS

The public participation process was undertaken in accordance with the principles and requirements of the Namibian Environmental Management Act, No 7 of 2007 and associated Regulations.

The approach to the public participation process was open and participatory with the full involvement of Interested and Affected Parties (IAPs). This approach ensured that reasonable measures were taken to identify stakeholder issues and concerns.

The Methodology for the Public Participation was as follows:

- Advertisements were placed in three different newspapers at two different times – totalling of six advertisements. Site notices were displayed at various places alongside the proposed access roads. Proof of these placements are attached in Appendix E.
- Two Public Consultation Meetings were held, one at Aminius and the other at Corridor 13. The meetings were well attended and took place on the 11th May 2021.
- Apart from the public meetings, a list of stakeholders was contacted as attached in Appendix E. These stakeholders had the opportunity to register and comment on the proposed access road project.
- The proof of notice placements and the full set of minutes of the meetings held is attached as Appendix E.

The following tables is a summary of issues and concerns that were raised during the meetings:

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
MEETING HELD AT AMINIUS				
1	Where are RA applications for pipelines done?	Verikomba Kanguatjivi	RA offices in Gobabis. I will see that we get some application forms to the Aminuis constituency office.	Bruno Mokhatu
2	In Aminuis there is a pipeline that crosses the road.	L Bendt	If there are boreholes that have been drilled by the Ministry of Agriculture, Water and Land Reform (MAWLR) they need to hand in the application form for the pipeline to the RA.	Bruno Mokhatu
3	Material is being taken and not paid for in the reserve, but on commercial farms people are being compensated.	Eben Muniaro	No, material is not being paid for unless that the owner's activities are prevented and property is being destroyed where material is being taken, then they will be compensated.	Bruno Mokhatu
4	Are people compensated for water?	Verikomba Kanguatjivi	Water is not being paid for if RA drills the boreholes, if it is an existing borehole that was drilled by the community or an individual the water will be paid for in accordance with the national rates.	Bruno Mokhatu
5	Employment of community. Please do not make the same mistakes that were done during the MR91 construction where there have been numerous strikes, even today. We need the tar road but the project has stopped because people are striking.	C Mafunga		
6	If I live next to the road and I want an access point to my house, is that what I need to apply for?	C Dirks	Yes, applications for access points must be submitted to the RA office.	Bruno Mokhatu
7	If the community asks for an access road of 5km at Okambepera, what is the chance of that being granted?	Mongake Vincent	All access points need to be applied for and access points need to be at least 300m apart.	Bruno Mokhatu
8	Would like to inform the RA that in the past numerous pipes that cross the road have been damaged which have not been applied for.	Verikomba Kanguatjivi	Noted.	Bruno Mokhatu

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
9	Could you please explain to the people of Hugus where the road will be constructed? People have been coming into Hugus and taking measurements and nothing has been explained to the community and what the engineers are busy doing. People are scared that their houses will have to be relocated, the community of Hugus mainly consist of elderly people.	C Dirks	Measurements have been taken to determine where the road must go. We take note. The measurements assist the engineers with the road design, once this has been finalised it will be communicated to the community.	Rodney Gawiseb Maike Prickett
10	We would like to ask that boreholes are being left for the community to use. Who do we need to speak to?	Verikomba Kanguatjivi	You need to speak to RA. In reserves, if boreholes are left for further use, they are being given to the community and not to individuals.	Bruno Mokhatu
11	We will inform the community that they have to apply for the pipelines that cross the road.	D Leberake		
12	Who will show us where pipes should cross the road?	L Bendt	RA, the Gobabis office. I will arrange that application forms are available at the constituency office.	Bruno Mokhatu
13	Old pipes that are crossing the road that have been there for more than 40 years, what about those?	Mongake Vincent	If the RA does not know about them, they are illegal, regardless of how old they are.	Bruno Mokhatu
14	Older people should also be entitled to work on these projects. I am a 60-year-old lady and would like to do administrative work on a project like this.	C Mafunga	The employment will be done through the Councillors Office and the contractor employs people based on lists with names that they receive.	Rodney Gawiseb
15	Please explain the access points/roads. Do we need to apply for a road to our church?	E Dirks	Any access road that leads to a farm or house etc. The distance between two access points must be more than 300m. Speak to the contractor once they are on site, they might be able to do this as a social responsibility.	Bruno Mokhatu

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
16	We don't know what the engineers are doing in the area.	C Mafunga	The consultants will come back to the community to discuss plans and where necessary compensation.	Bruno Mokhatu
17	Will there be corridors/fences along the road? What about the cattle on the road?	Verikomba Kanguatjivi	There are guidelines that will determine if fences will be put up or not. We take note of your concern and will pass this on.	Maike Prickett
18	A corridor/fence has been requested in a letter to the RA/engineer. People here will look after fences; these will help avoid accidents.	Joachim Serogwe	Noted, please send me a copy of the letter.	Maike Prickett
19	Is fencing restricted to the main routes or will it also be put up along the district roads?	Mongake Vincent	We will enquire and revert. We have seen on the main road between Grootfontein and Gobabis that the corridors that have been put up are not being used and fences have been removed in places.	Bruno Mokhatu

Table 4: Comments received during the stakeholders meeting held at Aminius.

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
MEETING HELD AT CORRIDOR 13				
1	What guarantee do we have that our community will benefit from the road construction through employment?	Verinuka Black	Employment will be done through the Councillors Office. The procedure followed is that traditional leaders are being asked to give a list of names which are then given to the contractor, this is for unskilled labour. Skilled labour is being advertised.	Rodney Gawiseb Beatus Monchwhe
2	The road must get a corridor/fence.	Sam Katjiperue	The boreholes will become RA property if they were drilled by RA. Once the project has been completed, the community can use the boreholes, but they will have to do their own installations because the contractor usually removes his borehole pump upon completion, unless otherwise agreed. Boreholes are usually given to the community(ies) and not to individuals.	Bruno Mokhatu
3	Boreholes should not be drilled everywhere, and contractors must speak to the community before commencing with drilling. A common problem is that communities settle close to the water source (borehole) and are not willing to share water with other communities.			
4	Roads Authority should give the boreholes to the communities and not close them up.			
5	Homesteads next to the road that are not 100m away, many people are not aware of the proximity rule from road to house/fence (as was indicated by Bruno during the RA Application process presentation). People should be informed of these rules.	Verinuka Black	Apology. These rules are part of the road ordinance.	Bruno Mokhatu
6	What is the standard with regards to fencing along roads?	Ady Riruako	Not sure, but roads in the reserves are not usually fenced.	Bruno Mokhatu

No.	ISSUE	RAISED BY	RESPONSE PROVIDED	PROVIDED BY
7	If there are no fences being put up and cattle cause accidents owners are being held liable.	Sam Katjiperue		
8	Fences should be put up along the tar road to prevent animals from causing accidents.	Chief Hubert Ditshabue	We take note of your concern and will convey this to the client.	Maike Prickett
9	Who do the engineer/contractor speak to regarding houses being in the way of the road?	Elias Nderura	The owners as well as the traditional leaders will be consulted.	Rodney Gawiseb
10	How will job appointments be handled?	Elias Nderura	Through the Councillor's Office for the unskilled. Skilled jobs will be advertised, and people brought in from outside.	Rodney Gawiseb
11	It should be taken up with the Councillor's Office, because the appointments on MR91 were not done according to the lists submitted by the traditional leaders.	Verinuka Black		

Table 5: Comments received during the stakeholders meeting held at Corridor 13.

8. ENVIRONMENTAL IMPACTS

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

- **Camp site establishment**
 - Demarcation of the camp site
 - Protection of vegetation and natural features
 - Protection of fauna
 - Protection of cultural historical aspects
 - Topsoil conservation
 - De-bushing and de-stumping
 - Structures construction: bulk water, sewage, electricity and accommodation
 - Parking and other required demarcated areas
- **Site infrastructure**
 - Batching plants
 - Crusher plants
 - Sand washing plants
 - Nurseries
 - Construction of service, haul and access roads
 - Gates and fences
- **Site management**
 - Rubble and waste rock
 - Solid waste
 - Liquid waste
 - Hazardous waste
 - Pollution control
 - Implements and equipment
 - Blasting
 - Air quality
 - Noise control
 - Fire control
 - Health and Safety
- **Earthworks**
 - Prospecting boreholes and test pits
 - Excavations and trenches
 - Cut and fill
 - Shaping and trimming
 - Construction of pavement layers
- **Stockpiles, storage and handling**
 - Topsoil
 - Spoil
 - Vehicles and equipment
 - Fuel
 - Hazardous substances

8.1 Environmental Impact Assessment Process Methodology

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

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

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

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

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

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

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

PART 1 OF THE SCOPING CHECKLIST: QUESTIONS ON PROJECT CHARACTERISTICS

1. Will construction, operation or decommissioning of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, etc)?

No.	Questions to be considered in the Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
1.1	Permanent or temporary change in land use, land cover or topography including increases in intensity of land use?	Yes	The borrow pit operations will temporarily alter the land use, land cover and, for the borrow pits - topography of the area.	Low significance because of possible mitigation measures that can be implemented. Rehabilitation of borrow pits normally return the land use to its original state.
1.2	Clearance of existing land, vegetation and buildings?	Yes	Clearing of vegetation for construction operations influencing the vegetation, soils and topography. It is very unlikely that any buildings will be cleared.	Clearing of vegetation is always regarded as significant when it comes to road construction. However, mitigation measures can reduce the significance of the impact.
1.3	Creation of new land uses?	No	The new road will be built mostly on the existing alignment.	Low significance.
1.4	Pre-construction investigations eg boreholes, soil testing?	Yes	Materials testing are required to obtain construction materials which will affect the topography and vegetation cover.	The areas of disturbance are very small. Holes are dug to excavate samples and closed after sampling. Low significance.
1.5	Construction works?	Yes	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	The existing alignment will be used therefore there are no significant impacts anticipated.
1.6	Demolition works?	Yes	The removal of old culverts.	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?	Yes	The current alignment will be followed .	The significance will be low due to the width and current alignment to be used. The deviation off the existing alignment will be mitigated in conjunction with the landowner.
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: <ul style="list-style-type: none"> • supporting infrastructure • housing development • extractive industries • supply industries • other? 	Yes	Stimulating the tourism industry.	This might be a significant positive impact on the towns of Aminius and Corridor 13 as well as local tourism.
10.3	Will the project lead to after-use of the site which could have an impact on the environment?	No		
10.4	Will the project set a precedent for later developments?	?	Unlikely	
10.5	Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects?	No		

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

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

<p>Question - Are there features of the local environment on or around the Project location which could be affected by the Project?</p> <ul style="list-style-type: none"> • The road travels through agricultural areas. • There is a low possibility of features of high historic or cultural importance. • Surface drainage patterns will be addressed through proper engineering design.
<p>Question - Is the Project in a location where it is likely to be highly visible to many people?</p> <p>This road is used extensively during the tourism season (before Covid regulations) ; therefore, the location is highly visible to many people.</p>
<p>Question - Is the Project located in a previously undeveloped area where there will be loss of Greenfield land?</p> <p>No, the road will be constructed mostly on the existing alignment.</p>
<p>Question - Are there existing land uses on or around the Project location which could be affected by the Project?</p> <p>There will be a quite a few borrow pits that will be opened but will not affect the existing land uses significantly.</p>
<p>Question - Are there any plans for future land uses on or around the location which could be affected by the Project?</p> <p>No. The area will probably remain agricultural / communal / conservation.</p>
<p>Question - Are there any areas on or around the location which are densely populated or built-up, which could be affected by the Project?</p> <p>There are no densely populated areas around the project, only agricultural activities and dwellings found at Aminius and Corridor 13.</p>
<p>Question - Are there any areas on or around the location which are occupied by sensitive land uses which could be affected by the Project?</p> <p>No.</p>
<p>Question - Are there any areas on or around the location which contain important, high quality or scarce resources which could be affected by the Project?</p> <p>There are no scarce resources found around the project that could be influenced by the construction or operational phases of these projects, but there are some flora species (trees) that are protected by Forestry Legislation. There are also some protected animal species that will be encountered during construction and operational phases.</p>
<p>Question - Are there any areas on or around the location of the Project which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?</p> <p>No. The area has been subject to agricultural and semi-urban / tourism activities.</p>
<p>Question - Is the Project location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems?</p> <p>No. The area is very flat with limited floods, erosion or impacts on the climatic conditions.</p>
<p>Question - Is the Project likely to affect the physical condition of any environmental media?</p> <p>No, the proposed project will be constructed mostly on the existing alignment.</p>

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

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

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

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

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

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

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

Questions that were considered to determine significance:

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

8.2 **Environmental Impact Assessment Summary**

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

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

Impoundment, damming, culverts, realignment or other changes to the hydrology of watercourses or aquifers.	Water balancing is an important aspect to be evaluated. Improving the culverts on the road will be positive.	Positive	Low
Abstraction or transfers of water from ground or surface waters?	Water will be extracted for the construction phase of the project.	Negative	Medium
Changes in water bodies or the land surface affecting drainage or run-off?	Drainage will improve due to the increased structures (culverts) and widening of the bridges.	Positive	Medium
Influx of people to an area in either temporarily or permanently	Migration of people might impact on the socio-economic structure of the area. The risk of HIV/AIDS may increase due to the influx.	Negative	Low
Loss of native species or genetic diversity?	Surface disturbances always impact on the bio-diversity 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. Safety of the road user will also greatly improve between Aminius and Corridor 13.	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 tourism facilities and towns.	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

9. IDENTIFICATION OF SPECIAL MITIGATION AND MANAGEMENT MEASURES

A generic Environmental Management Plan is attached to the Scoping Report that serves as minimum mitigation and management measures for the construction of any road. There is however specialised mitigation measures applicable to flora for this specific project and environment.

The following recommendations are therefore applicable for the flora:

- Large *Acacia erioloba* trees and *Boscia albitrunca* within the road reserve should be spared wherever possible. A careful survey should be done along the entire route to identify those that need not be destroyed, and they should be clearly marked and protected.
- As far as possible existing tracks alongside the existing road and within the present servitude should be utilised for both construction and maintenance. The area used should be constrained as far as possible.
- Gravel pits should be held to a minimum. Wherever possible existing gravel pits should be used than creating new ones. Pans should not be targeted to be used as gravel pits.
- Damage to trees to obtain fuel wood should be forbidden.
- Construction and maintenance staff should be educated and informed of their environmental obligations. Meaningful penalties for damages should be stipulated.
- Large trees in the road verge should be conserved during maintenance activities in future.

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 standards applicable to such a project.

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

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.

A) Engineer's Representative (ER)

The Engineer will delegate powers to the Engineer's Representative (ER) on site who would act as the Employer's implementing agent and 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 appointment of the Environmental Control Officer (ECO).

Any on-site decisions regarding environmental management are ultimately the responsibility of the ER. The ER will 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.

- Assisting the Contractor in finding environmentally responsible solutions to problems with input from the ECO where necessary.
- Taking appropriate action if the specifications are not followed.
- Ordering the removal of person(s) and/or equipment not complying with the ESMP specifications.
- Recommending and issuing fines for transgressions of site rules and penalties for contravention of the ESMP.
- Advising on the removal of person(s) and/or equipment not complying with the specifications.
- Receive and record any complaints (concerning environmental matters) from landowners or the public.
- Auditing the implementation of the ESMP and compliance with authorization on a monthly basis.

B) Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) will be a competent person from the staff of the Engineer 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:

- Assisting the ER in ensuring that the necessary environmental authorizations and permits have been obtained.
- Maintaining open and direct lines of communication between the ER, Contractor and interested and effected parties (I&APs) with regard to environmental matters.
- Convening and facilitating public meetings.
- Regular site inspections of all construction areas with regard to compliance with the ESMP.
- Monitoring and verifying adherence to the ESMP, monitoring and verifying that environmental impacts are kept to a minimum.
- Assisting the Contractor in finding environmentally responsible solutions to problems.
- Monitoring the undertaking by the Contractor of environmental awareness training for all new personnel coming onto site.

C) The Contractor

The duties of the Contractor are as follows:

- The Contractor shall be familiar with the contents of the ESMP in order to understand the mitigation measures and the reasons for the measures.

- The Contractor's site agent and his Safety Health and Environmental Officer (SHE) shall at all times be in possession of this ESMP.
- Attend lectures / training that deals with environmental issues and the content of the ESMP.
- The Contractor shall through the SHE ensure that he complies fully with the Environmental Specifications. This includes all plant operators, transport vehicles, and sub-contractors.
- The Contractor should also notify the ER of any activity that could or did impact negatively on the environment.

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 the 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.
- 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.
- A HIV/AIDS awareness programme as part of Health and Safety issues.
- The Contractor shall keep records of all environmental training sessions, including names, dates and the information presented.

The Code of Conduct list is attached to this document (Appendix A) and serves as the minimum Environmental Awareness and Training curriculum to be conveyed to the construction workers. This list should also be incorporated into any induction training sessions of new workers.

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. Meetings to discuss progress and any construction issues that may arise shall be held at least every three months and more regularly if deemed necessary by the ER. These meetings shall be arranged by the ECO but shall be facilitated by the ER. 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 Minimum Required Environmental / Social Mitigation Measures

The following table serves as the minimum requirements / mitigation measures required to be implemented during the construction phase of the project. These measures will minimise or avoid any negative environmental impacts associated with the construction of the roads and enhance the positive impacts.

The mitigation measures mentioned in this table needs to be enforced from the offset of the project. These measures will also be monitored by an independent environmental consultant on a regular basis as to ensure that the environment is properly managed and not damaged.

These measures will also be included into the tender document as to ensure that the contractor appointed will have priced for the mitigation requirements. Therefore, have no excuse for actions required as stipulated by the environmental management plan.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
1.MANAGEMENT AND MONITORING	To ensure that the provisions of the ESMP are implemented during construction.	<ul style="list-style-type: none"> a. The Environmental and Social Consultants shall ensure that all aspects of the ESMP are implemented during construction. b. The Environmental and Social Consultants shall attend regular site inspections and meetings and minutes shall make provision for reporting on every aspect of the ESMP. 	Environmental and Social Consultants together with the ECO.
2.COMMUNICATION AND STAKEHOLDER CONSULTATION	To ensure that all stakeholders are adequately informed throughout construction and that there is effective communication with and feedback to the Consultant and Client.	<ul style="list-style-type: none"> a. The Contractor shall appoint an ECO from the construction team to take responsibility for the implementation for all provisions of this ESMP and to liaise between the Contractor, Community, Client and Consultants. The ECO must be appointed within 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 and Social Consultants to monitor.
3. HEALTH AND SAFETY	To ensure health and safety of workers and the public at all times during construction	<ul style="list-style-type: none"> a. The Contractor shall submit a strategy to ensure the least possible disruption to traffic and potential safety hazards during construction. b. The strategy should include a schedule of work indicating when and how road crossings (construction at existing intersections) will be made. The schedule will be updated and distributed to all stakeholders. 	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<ul style="list-style-type: none"> c. The Contractor shall also liaise with the Traffic Authorities in this regard. d. Proper traffic and safety warning signs will be placed at the construction site to the satisfaction of the Engineer and the Roads Authority. e. The Contractor will adhere to the regulations pertaining to Health and Safety, including the provision of protective clothing, failing which the Contract may be temporarily suspended until corrective actions were taken. f. PPE shall be issued to all workers applicable to their specific activities. g. Surface dust will be contained by wetting dry surfaces periodically with a water bowser, sprinkler system or any suitable method. This applies for the construction site as well as all the roads. h. Potable water shall be available to workers to avoid dehydration. This water shall be of acceptable standards to avoid any illness. At least 5 liters of drinking water per person per day shall be made available during construction. i. The Contractor shall enforce relevant Health and Safety Regulations for these specific activities. j. The Contractor shall also comply with relevant Labour Laws as stipulated by the Labour Act. k. The Contractor shall implement a HIV/AIDS and Covid 19 awareness programme as part of Health and Safety. l. Blasting may only be conducted by a qualified person and all laws and regulations will be enforced before and during blasting. 	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
4. CONSERVATION OF THE NATURAL AND HISTORICAL ENVIRONMENT	<p>To minimise damage to soil, vegetation and historical resources during the construction phase. This includes soil crusting, soil erosion and unnecessary vegetation destruction.</p> <p>Management of water (domestic and construction).</p> <p>Management of other sensitive areas.</p>	<ol style="list-style-type: none"> a. 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. Areas to be disturbed shall be clearly demarcated, and no land outside these areas shall be disturbed or used for construction activities. 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. b. No off-road driving shall be allowed, except on the agreed haul and access roads. c. Vegetation shall be cleared within the road reserve as necessary for the construction of the road. The area on either side of this corridor 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 of Namibia's specifications with regard to the road reserve. d. A prescribed penalty will be deducted from the Contractor's payment certificate for every mature tree removed without approval. e. Where compaction has taken place in disturbed areas, these areas will be ripped and covered with topsoil kept separate for this purpose. f. Poaching or collecting of wild animals is prohibited. 	<p>Contractor will ensure the mitigation measures are enforced at his own expense.</p> <p>The ECO will monitor.</p>

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<ul style="list-style-type: none"> g. The killing of any animal (reptile, bird or mammal) is prohibited. h. A prescribed penalty will be deducted from the Contractor's payment certificate if it is shown that any of his staff or sub-contractors is involved in trapping, hunting or any kind of collecting of wild animals in the vicinity of the work sites. Offenders will be handed to the authorities for prosecution. i. Pipelines for the pumping of construction water shall as far possible run within the road reserve and along existing tracks and other roads. j. Water will not be allowed to be wasted. This includes water required for construction and domestic purposes. k. Collection of plants or parts of plants (including firewood of any size or description) is forbidden. l. As far as possible existing tracks alongside the existing road and within the present servitudes should be utilised for both construction and maintenance. These should be clearly indicated, together with designated turning points and construction laydown areas. The area used should be constrained as far as possible. 	

<p>5.BORROW PIT MANAGEMENT AND REHABILITATION</p>	<p>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 decommissioning (to stimulate vegetation and other biological activities). To establish borrow pits which are aesthetically pleasing after decommissioning.</p>	<ol style="list-style-type: none"> a. Rocky outcrops and surface water drainage lines are the most sensitive areas associated along the route. Borrow pits should not be placed / opened in these highly sensitive areas. b. The removal of construction material shall be focused where the least significant vegetation exists and where suitable materials are available. c. The Engineers and Surveyors must draft a plan for approval before commencement of a borrow pit. This plan must indicate the required resources and sensitive areas that may not be mined d. All borrow pits must be rehabilitated. e. The borrow pits shall be rehabilitated by trimming the sides to a slope not steeper than 18° (1:3) and evenly spreading the topsoil over the slopes to allow for the growth of new vegetation. f. All spoil material at the borrow pits shall be neatly shaped and no oversize loose material must be left inside the borrow pits, before spreading of topsoil. g. Individual trees within the borrow pit area shall be removed and not left on a topographical high point. These trees normally perish over time and the high point remains. Trees at the outskirts of the BP shall be retained. h. Vegetation that has been removed during BP activities shall be placed on the outer slopes of the BP as to prevent soil erosion and serve as a "seedbed" for regrowth. i. Berms (overburden or topsoil) shall be flattened or managed in cooperation with the environmental consultant, landowner, ECO and RE. j. Access to borrow pits shall be controlled (using gates or manned positions). k. The borrow pit floor shall be levelled evenly as part of rehabilitation. 	<p>Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.</p>
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		<ul style="list-style-type: none"><li data-bbox="913 233 1742 331">l. The disturbed areas shall, where trimming cannot be done neatly by machine, be raked by hand after sloping rehabilitation to limit possible visual impacts.<li data-bbox="913 339 1742 438">m. A Borrow Pit Rehabilitation Plan will be compiled indicating the rehabilitation schedule (timeframes) for the various borrow pits to be rehabilitated.<li data-bbox="913 446 1742 638">n. Once the pits are scheduled for rehabilitation, the pit should be rehabilitated according to this ESMP. Once rehabilitation is complete, the Borrow Pit Rehabilitation Checklist will be completed (attached to this document). After signing of the Checklist, the borrow pit is closed and NO more activities will be allowed in or around the areas.<li data-bbox="913 646 1742 710">o. These rehabilitation requirements are in line with the Roads Authority Borrow Pit Rehabilitation Guidelines.	
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COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
6.WASTE (SOLID / LIQUID) AND POLLUTION MANAGEMENT	<p>To avoid contribution to potential surface and groundwater pollution.</p> <p>To avoid contribution to potential soil pollution.</p> <p>To ensure that sound waste management practices are adhered to during construction.</p>	<ol style="list-style-type: none"> a. Construction rubble and other waste generated during construction will be disposed of on a regular basis at an approved waste disposal site, which could be mined out borrow pits deep enough to properly bury construction waste such as concrete and oversize gravel and cover it with at least 1m of overburden material. b. A temporary waste site may be demarcated for temporary storage of waste, but this area will be identified and clearly marked. c. The temporary domestic waste site will be fenced off with access control to the area. d. Adequate separate containers for hazardous and domestic waste will be provided on site and at the construction camp. e. The workforce will be sensitized to dispose of waste in a responsible manner and not to litter. f. Waste bins will be placed in and around the construction site to facilitate proper waste management. These waste bins shall be emptied at a regular basis. g. No waste may remain on site after completion of the project. h. Toilet facilities will be available in the following ratio: 2 toilets for every 50 females and one toilet for every 50 males. The toilets should be such that it 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 penalty will be issued for any sewage overflow or spill. It is the responsibility of the contractor to ensure proper sewage 	<p>Contractor will ensure the mitigation measures are enforced at his own expense.</p> <p>The ECO will monitor.</p>

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<p>management at the camp(s) and alongside the road being constructed.</p> <ul style="list-style-type: none"> j. A demarcated vehicle service area will be provided at the contractor camp. This area will have an impermeable floor (lining or concrete), 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. k. Servicing of vehicles is only permitted in the demarcated vehicle service area, except for large immobile vehicles which may be serviced on site, on condition that oils and lubricants are prevented from spilling using drip trays or other suitable containers. l. 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 vehicles are parked. The drip trays will be cleaned every morning and the spillage handled as hazardous waste. m. Machines operating during the day that shows signs of excess leaking (verified by ECO or ER) should be withdrawn from the task and repaired by the Contractor. n. Accidental spills will be cleaned immediately. The contaminated soil will be suitably disposed of in a container suitable for hazardous waste. 	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<ul style="list-style-type: none"> <li data-bbox="913 363 1731 555">o. Oil, lubricants, polluted soils and other hazardous materials will be stored in separate containers and disposed of at an approved waste disposal site or temporary stored for collection by an oil recycling company. These used oils and polluted soils shall temporary be stored within a bunded area with an impermeable floor. <li data-bbox="913 564 1731 724">p. The cleaning of the bitumen tanks (spray nozzles) may only be done at an approved area which is a pit with acceptable quality floor lining. This area will not be used as a general waste disposal area. This pit will be rehabilitated by removing the bitumen and linings. The pit will NOT be covered before it is cleaned. <li data-bbox="913 734 1731 798">q. Bitumen tanks will be placed on an impermeable floor (concrete or plastic lining) and the area will be bunded. <li data-bbox="913 807 1731 999">r. Fuel tanks on site will be properly bunded. The volume of the bunded area will be sufficient to hold 1.5 times the capacity of the storage tanks. The floor of the bunded area will be impermeable (either lining or concrete) and the sides high enough to achieve the 1.5 times holding capacity. There will be a valve installed in the bunded area to allow rainwater drainage. <li data-bbox="913 1008 1731 1104">s. There will be an impermeable floor (concrete or plastic) where re-fuelling is taking place. This is applicable to the bulk fuel area as well as any mobile re-fuelling stations. <li data-bbox="913 1114 1731 1209">t. Foam fire extinguishers will be in close proximity to 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. 	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
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.	<ul style="list-style-type: none"> a. A decommissioning plan will be drafted for the contractor's camp(s). This plan will indicate the actions required to decommission all buildings, water services, power services, and other facilities at the various contractor camps(s). b. All bunded areas, equipment, waste, temporary structures, stockpiles etc. must be removed from the camp and work sites. Any material used for the road construction or which remain due to construction shall be removed alongside the road (stone chips, windrows, stockpiles, large rocks, etc) c. 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. d. All cuttings must be shaped with a slope to provide a natural appearance, without having to destroy significant vegetation on top of the slope. e. Existing borrow pits adjacent to main roads need also be rehabilitated during rehabilitation phase. 	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

10.6 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 ER 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 from 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:

- a. within the boundaries of the site, site extensions and haul/access roads there is evidence of contravention of the Specification;
- b. environmental damage due to negligence;
- c. the Contractor fails to comply with corrective or other instructions issued by the ER within a specific time;
- d. the Contractor fails to respond adequately to complaints from the public.

Penalties for the activities detailed below, might be imposed on discretion of the ER should the Contractor and/or his Subcontractors be found to be Non-Compliant (Section 8.6):

a.	Actions leading to major erosion.	A penalty equivalent in value to the cost of rehabilitation plus 20%.
b.	Oil spills due to negligence and/or reluctance towards mitigation measures mentioned in the ESMP.	A penalty equivalent in value to the cost of clean-up operation plus N\$ 5,000.
c.	Damage to indigenous vegetation due to reluctance towards the ESMP.	A penalty equivalent in value to the cost of restoration plus N\$ 5 000.
d.	Damage to demarcated sensitive environments.	A penalty equivalent in value to the cost of restoration plus N\$ 5 000.
e.	Damage to demarcated cultural sites.	A penalty to a maximum of N\$100 000 shall be paid for any damage to any cultural/ historical sites identified during the EIA and made known to the Contractor.
f.	Damage to trees.	A penalty to a maximum of N\$5 000 shall be paid for each tree removed without prior permission, or a maximum of N\$5 000 for significant damage to any tree, which is to be retained on site.
g.	Damage to natural fauna (due to negligence and/or deliberate injury to any natural occurring animal.	A penalty to a maximum of N\$5 000
h.	Improper storage of any hazardous materials or hydrocarbon substances (used oils / diesel / petrol).	N\$ 10,000
j.	Litter on site.	N\$ 1,000
k.	Deliberate lighting of illegal fires on site.	N\$ 1,000
l.	Uncontrolled leaking or overflow of any toilet or sewage system related to the contract.	N\$ 10,000 plus rehabilitation cost
m.	Any person, vehicle, item of plant, or anything related to the Contractors operations identified driving in any "no-go" area or driving outside the permitted areas.	N\$ 10,000 plus the rehabilitation cost

- 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 ER, be doubled in value to a maximum value of N\$20, 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 this document.

10.7 Environmental Monitoring and Auditing

Environmental monitoring should be conducted at least once every six months during construction. Benefits derived from the monitoring and final audit process might include:

- identification of environmental risk;
- development or improvement of the environmental management system;
- avoidance of financial loss;
- avoidance of legal sanctions;
- increase in staff awareness;
- identify potential cost savings;
- improve dealings with employees, environmental groups, the community, regulators, media, shareholders, or insurance & finance institutions; and
- establish a history of environmentally responsible operations, e.g. through environmental incident reports, environmental monitoring & recording, & reporting to committees or Authorities.

Commonly, the environmental monitoring or audit of a site will cover all management procedures, operational activities & systems, and environmental issues. The environmental monitoring and final audit will be compiled objectively and be conducted by an independent, competent entity.

10.8 Documentation, Record Keeping and Reporting Procedures

It is vital that an appropriate document handling and retrieval system be developed for all EMP documentation. This will ensure that there is adequate EMP documentation control and will facilitate easy document access and evaluation. EMP documentation should include:

- EMP implementation activity specifications;
- training records;
- site inspection reports;

- monitoring reports; and
- Performance Assessment reports.

Responsibilities must be assigned to relevant personnel for ensuring that the EMP documentation system is maintained and that document control is ensured through access by and distribution to, identified personnel.

Document control is important for the effective functioning of an EMP. A document handling system must be established to ensure adequate control of updating and availability of all documents required for the effective functioning of the EMP. This procedure applies to the EMP as well as procedures and policies relating to the EMP, which must be controlled (i.e. identified, registered and changes recorded).

The Environmental Officer is responsible for ensuring that the registration and updating of all relevant EMP documentation is carried out. It is the responsibility of the Project Manager of the Contractor to ensure that all personnel are performing according to the requirements of this procedure and to initiate the revision of controlled documents, when required by changes in process, operating procedures, legislation, specifications, monitoring or audit findings or any other circumstances, by informing the Environmental Officer of the changes. A controlled document is official only if the issue/revision has been approved. The Environmental Officer and Project Manager are responsible for ensuring that the latest versions of documents are used to conduct tasks which may impact on the project environment.

11. TERMS OF REFERENCE FOR THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

If the Scoping Report does not meet MET's requirements, the next phase of the environmental investigation will entail a full Environmental Impact Assessment (EIA).

1.1 Format of the EIA

The EIA must fulfil the requirements of the Ministry of Environment and Tourism (MET) including the current legislation and regulations.

1.2 SCOPE OF WORK

1.2.1 EIA

Should the construction activities of the new road trigger further environmental investigations, the following specialists might be involved:

- Entomology and Herpetology
- Archaeology

The EIA process will entail the following aspects:

- Site inspection
- Review of specialist reports
- Baseline assessment
- Quantification and qualification of potential impacts
- Cumulative impact assessment
- Identification of effective mitigation measures
- Authority liaison

1.2.2 Public consultation

Should a full EIA be required, EMCN, together with the abovementioned specialists and Socialist, will conduct a second round of public consultation similar to the initial process undertaken during 2012.

1.2.3 Environmental Management Plan

Management and mitigation measures identified in the EIA will be summarised into an Environmental Management Plan (ESMP) for use during the construction and operational phases of the project incorporating specialist management measures for entomology and archaeology.

12. CONCLUSION

The Scoping Report aims at obtaining an Environmental Clearance Certificate from the Ministry of Environmental, Forestry and Tourism and therefore conditional permission to commence with the construction of the three access roads as discussed in this document.

The possible negative impacts associated with the construction and operation of these roads is limited due to the fact that most of the upgrading of the road to low volume seal will take place within the current alignment of the existing gravel roads.

The positive impacts are mainly associated with the operational phase of the project and will be beneficial to the local and regional people due to better access to rural towns, reduced vehicle operating cost and reduction of road user accidents.

EMCN is of opinion that should mitigation and management measures be implemented as indicated; the project will not affect the natural environment in any detrimental sense. Therefore, we are of opinion that the project can be granted a Clearance Certificate and that the project will have greatly positive socio-economic benefits.

13. REFERENCES

Germishuizen, G. & Meyer, N.L. (eds) 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.

Mendelsohn, 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

<http://environmentalcommons.org/cetos/criticalhabitat/imazapyr.pdf>..

APPENDIX A

BASIC RULES OF CONDUCT

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

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

DO:

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

DO NOT:

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

APPENDIX B

REHABILITATION CHECKLIST FOR THE FINALIZATION OF BORROW PITS

Borrow Pit Name and Number: _____ Date: _____

It is essential that a borrow pit meet the requirements set out in the approved ESMP 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 ESMP:

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

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

Signed off by:

Landowner: _____

Residing Engineer / Authorized Person

Environmentalist

APPENDIX C

FLORA SPECIALIST REPORT

APPENDIX D

CURRICULUM VITAE OF COMPILER

APPENDIX E

PUBLIC PARTICIPATION PROCESS

PROOF OF PLACEMENTS



Environmental Impact Assessment notices placed in the Market Watch segment of the Republikein on the 23rd and 30th April 2021.

with alcoholics.

Mail: volmer@telecom.na

Downen@gmail.com

Call: 081 256 8279

VENUE: civiLidertiz and Kasiu Streets

DATE AND TIME: Thursdays at 19H00

Market Watch

Om te adverteer skakel: 081 256 8279

AL-ANON

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2. Spend on Shell FuelSave Diesel, Shop Instore or top up with Shell Lubex
3. Grabber Shell stickers and stick them on your entry form
4. SMS your name, town and the word "Shell" to 82239

Winners will be announced weekly.

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Vrydag 30 April 2021

Republikein

Jou land. Jou taal. Jou koerant.

IN VANDAG SE KOERANT

DANSSTUDIO LAAT DIE VOETE JEUK

Van Schalkwyk skuldig aan strafbare manslaag

FOKUS

10 Market Watch FRIDAY 30 APRIL 2021

NEW LITHON PROJECT CONSULTANTS CEO TO DRIVE GROWTH AND INNOVATION

Gert Maritz leading the company's exciting next chapter

Lithon Project Consultants Namibia (LPC) has announced a change to the company's executive team, in alignment with its long-term strategic plan. Current CEO Gert Maritz will take the reins from Lithon founder Adrian Grobler as CEO of the company from May this year. Maritz has been with the company for over 15 years, joining the team as an engineer in 2005 before becoming a director in 2009.

According to Grobler, Maritz was the natural choice for the role. "Gert is passionate about Lithon's purpose and values and has helped to grow LPC into the multi-disciplinary and multi-country organisation it is today. His in-depth understanding of the business combined with his technical expertise and people-focused leadership style makes him the perfect person to lead our team of exceptional job-well and innovative."

The day starts that the change to LPC's executive team has been planned for several years, adding that "with the support of the executive team, I have no doubt that Gert will take the company to new heights."

Maritz, who will focus on driving the company's strategic plan, says, "Both our clear purpose to make a positive and significant impact in people's lives, and the dedicated team around me, make the tasks of rolling out our strategy and making our purpose much easier. As CEO, I am looking forward to leading this team on new heights."

Grobler founded Lithon and has been a key player in the company's growth. He will continue to provide his expertise and support in a consulting capacity.

Lithon includes the subsidiaries Lithon Project Consultants, Lithon Development, Lithon Impact Capital and the Lithon Foundation. For more information: www.lithon.com

Lithon Project Consultants

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT FOR THE UPGRADE TO LOW VOLUME SEAL STANDARDS OF ACCESS ROADS CROSSING CORRAL, GORGBA AND BIRCHBA

Supporting Consulting Engineers are pleased to file the Draft Environmental Impact Assessment and Studies on Environmental Management Plan as required by the Environmental Management Act No. 1950 and associated Environmental Regulations for the upgrade of low volume seal standards of the access roads CROSSING CORRAL, GORGBA AND BIRCHBA. The project is located in the area of the project area.

Public Consultation Period:
Date: 2 May 2021
Time: 08:00
Venue: Sandhoek Traditional Authority Hall, Gamskop 01

Date: 2 May 2021
Time: 08:00
Venue: Sandhoek Hall, Gamskop 01

For further information and register as a public member contact:
Project Management Consultants
Ms. Sibusiso Mkhomo
Ms. Sibusiso Mkhomo
081 256 8279

TULPAMWE

City of Windhoek



Environmental Impact Assessment notices placed in the Market Watch segment of the Allgemeine Zeitung on the 23rd and 30th April 2021.

WFO DVO with alcoholics.

Mail: volmerq@telecom.na

telcom.na

Downman@gmail.com

Cell: 081 258 8228

VENUE: cnu Lüderitz and Casino Streets

DATE AND TIME: Thursdays at 19H00

Market Watch Om te adverteer skakel

AL-ANON

TULIPALWE

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT FOR THE UPGRADING TO LOW VOLUME SEAL STANDARDS OF ACCESS ROADS DRISBOS, DRISBOS AND DRISBOS

Public Consultation Meetings

DATE: 23 May 2021

TIME: 10:00 AM

VENUE: Roodewalhof School Hall, Drisbos St

For further information, please refer to the EIA application or contact the Project Manager.



10 Market Watch

NEW LITHON PROJECT CONSULTANTS CEO TO DRIVE GROWTH AND INNOVATION

Gert Maritz leading the company's exciting next chapter

Project management and consulting engineering firm, Lithon Project Consultants Namibia (LPC), has announced a change to the company's executive team, in alignment with its long-term strategic plan. Current CEO Gert Maritz will take the reins from Lithon founder Adriaan Grobler as CEO of the company from May this year. Maritz has been with the company for over 15 years, joining the team as an engineer in 2005 before becoming a director in 2009.

According to Grobler, Maritz was the natural choice for the role: "Gert is passionate about Lithon's purpose and values and has helped to grow LPC into the multi-disciplinary and multi-country organisation it is today. His in-depth understanding of the business combined with his technical expertise and people-focused leadership style makes him the perfect partner to lead LPC into this next chapter of growth and innovation."

He also states that the change to LPC's executive team has been planned for several years, adding that with the support of the executive team, "I have no doubt that Gert will take the company to new heights."

Maritz, who will focus on driving the company's strategic plan, says, "Both our clear purpose to make a positive and significant impact in people's lives, and the dedicated team around me, make the task of rolling out our strategy and meeting our purpose much easier. As CEO, I am looking forward to leading this highly skilled and energetic team to new heights."

Grobler founded Lithon almost two decades ago and has grown it into a dynamic group of companies specialising in innovative engineering, sustainable development, and impact investment. He'll continue to keep the group as CEO of Lithon Holdings, where he'll drive the business's diversification and expansion strategy.

Lithon Holdings includes the subsidiaries Lithon Project Consultants, Lithon Developers, Lithon Impact Capital, and the Lithon Foundation. For more information, visit www.lithon.com.

Lithon Project Consultants

Public Consultation Meetings

DATE: 30 May 2021

TIME: 09:30

VENUE: Roodewalhof School Hall, Drisbos St

For further information, please refer to the EIA application or contact the Project Manager.

Environmental Impact Assessment notices placed in the Market Watch segment of the Namibian Sun on the 23rd and 30th April 2021.



NOTICES DISPLAYED AT VARIOUS PLACES ALONGSIDE THE ACCESS ROADS

Aminuis Council Office



Marapula Bakery





Sox Trading Aminuis



Mauziza Supermarket Corridor



ATTENDANCE REGISTERS FOR BOTH MEETINGS

ATTENDANCE REGISTER

DATE: 11 May 2021

VENUE: Aminuis

PROJECT: Upgrading to Low Volume Seal Standards of Access Roads DR3815 (DR1004), DR3816 and DR3824

	NAME	EMAIL	CELL NR	SIGNATURE
1	L. B. Bendt		0813211605	<i>[Signature]</i>
2	D. S. Kobesale		0817000822	<i>[Signature]</i>
3	E. O. Nicks		0813344686	<i>[Signature]</i>
4	C. S. Mafungu	cunecimafungu@gmail.com	0812573999	<i>[Signature]</i>
5	C. Dirks	chataone@yahoo.com	0812449669	<i>[Signature]</i>
6	Mr Mongake Vincent	mongakevince28@gmail.com	081228636	<i>[Signature]</i>
7	Othel Kavari		0814716775	<i>[Signature]</i>
8	Ventouba Kamunetjivi	afjomaipanda@gmail.com	0812298235	<i>[Signature]</i>
9	Rodney A. Gausset	Rodney.gausset@tulipamwe.com	0812473370	<i>[Signature]</i>
10	Maiki Priddy			<i>[Signature]</i>
11	Charles Pollmann	pollmann@ra.org.na	0817176735	<i>[Signature]</i>
12	Bruno S. MOKHATU	MOKHATUB@RA.ORG.NA	0811664953	<i>[Signature]</i>
13	DEATU MENCHWE	gabecadmgwebm@gmail.com	0812557576	<i>[Signature]</i>
14	Joachim Serogwe	joachimserogwe@vnet.co.na	0811-217778	<i>[Signature]</i>
15	Eben Muniro	Ebensamuniro@gmail.com	0813078773	<i>[Signature]</i>



ATTENDANCE REGISTER

DATE: 11 May 2021VENUE: Corridor 13PROJECT: Upgrading to Low Volume Seal Standards of Access Roads DR3815 (DR1004), DR3816 and DR3824

NAME	EMAIL	CELL NR	SIGNATURE
1 Simeon Mbaukua	mbaukua.simm@gmail.com	081 296 9992	
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3 Bernhardt J. Tjmae	bernhardt.tjmae@gmail.com	081 209 5399	
4 Sam Kajjoesue	-	081 352 5922	
5 Felix Tiyima	-	081 412 6746	
6 Phamw. Kamuthinandira	-	081 249 1358	
7 ELIAS. NDERURA	O.T.A.	081 211 9642	
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10 HUBERT BITSHABUE	com.BAKGALAGANE T.A.	0813027598	
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13 Charles Pollman	pollmanc@ra.org.na	0817176735	
14 Judy Kahorere	-	08195 22 310	
15 BAK SETTSANG	N/A	-	
16 J. M. Olobika	-	081 44 86 902	



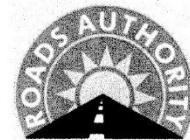
ATTENDANCE REGISTER

DATE: 11 May 2021

VENUE: Corridor 13

PROJECT: Upgrading to Low Volume Seal Standards of Access Roads DR3815 (DR1004), DR3816 and DR3824

	NAME	EMAIL	CELL NR	SIGNATURE
17	Nicolaus K. Brüngel	-	0813403079	<i>N. Brüngel</i>
18	H. Mologwane		0818238060	<i>H. Mologwane</i>
19	S. Kavah		0813334577	<i>S. Kavah</i>
20	A. Kambunguru		0814406624	<i>A. Kambunguru</i>
21	Mouke Prickett			
22	Willem Rehungeza Vandere		0817057495	<i>W. Vandere</i>
23	Amy A.S. Rimato		0812435505	<i>A. Rimato</i>
24	Aloys Motlubi		081886201	<i>A. Motlubi</i>
25	Jaacs Chaune		0816128540	<i>J. Chaune</i>
26	Johannes Chaune		0814479256	<i>J. Chaune</i>
27	Samuel Chaune		0816093065	<i>S. Chaune</i>
27	Grapelung Obolwe		0812846431	<i>G. Obolwe</i>



MINUTES OF THE MEETING HELD AT AMINIUS:



Notice of Environmental Impact Assessment for the upgrading to low volume seal standards of access roads DR3815 (DR1004), DR3816 and DR3824

Meeting Minutes

Type of Meeting: Public Consultation Meeting
Venue: Kambanderu Hall (Aminuis)
Time: 14h30 – 15h50

Agenda

1. Welcome – Maike Prickett
2. Environmental Impact Assessment (EIA) – Maike Prickett
3. Project Scope – Rodney Gawiseb
4. RA Application Processes – Bruno Mokhatu
5. Q&A
6. Conclusion – Maike Prickett

1. Welcome Maike Prickett, Consulting Team
2. EIA Presentation (see attached presentation document) Maike Prickett, 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*
- *If ECC is granted, it is valid for 3 years. It is attached to the Environmental Management Plan (EMP) – measures that force whoever develops to work according to the Environmental Management Act. The EMP needs to be adhered to during development/construction, to avoid/minimize/reduce the negative impacts and enhance the positive impacts. The EMP is a practical and important document.*
We want to avoid – spillage, pollution (surface water/soil, etc), bad waste management practices, etc.
- *Borrow pits: Borrow Pit Rehabilitation Project from the Roads Authority of Namibia (RA).*
- *Examples of good practices (shown during presentation): construction camp, waste management, borrow pit rehabilitation (Whk/Okh road)*
- *We need to strike a balance between development and conservation – to ensure that someone does not lose to the cost of someone else winning.*
- *You are welcome to raise your comments and concerns, we will listen to what you have to say and gladly answer as far as we can.*

3. Project Scope

Rodney Gawiseb, Consulting Team

The Roads Authority appointed Tulipamwe Joint Venture for the Consultancy Services for the Upgrading to Bitumen Standard of MR 91: Gobabis - Aminuis - Aranos.

Main road MR 91 is approximately 239km long and starts on TR 6/3 (km 0) and ends on MR 40 at Aranos (km 239). The road traverses two Regions in eastern Namibia with the section of road from km 0 to km 174 located in the Omaheke Region and the section from km 174 to km 239 in the Hardap Region.

MR 91 and MR 40 serve as a link between the Trans-Kalahari Highway and the Omaheke and Hardap Regions, and the need to improve the link between the farming and rural communities of the Omaheke and Hardap Regions and the main services center of Gobabis, as well as with other parts of Namibia, and the decision to upgrade the road are outlined below:

- The need to improve the link between Gobabis and Aranos is crucial for the agricultural sector of the eastern region.
- Reduced transportation costs to road users.
- Increasing agricultural, tourism and hunting potential in the area.
- Increased social benefits through improved access to health and educational facilities and improved employment opportunities.

As part of the Roads Authority's mandate in support of the Government's Rural Access Roads Development Programme to enhance rural accessibility, stimulate economic growth and connect the rural population to the economic belt of Namibia, the construction and

upgrading to Low Volume Seal standards of three (3) access roads intersecting the MR91: Gobabis – Aminuis – Aranos road namely, DR3815 (DR1004), DR3816 and DR3824, was prioritised.

The total length of the roads is approximately 96km as follows:

- DR3815 & DR1004: MR91 – Toasis 1 Village (Length = 28.2km)
- DR3816: MR91 – Corridor 13 (Length = 53km)
- DR3824: MR91 – Hugus Village (Length = 14.8km)

The works to be conducted will mainly comprise the following:

- The upgrading to low volume seal road standard of the existing gravel roads.
- The construction of prefabricated rectangular or box culverts.
- Appurtenant works such as accommodation of traffic, construction of drainage works, supply and installation of road signs, guide blocks, distance markers, road markings, shaping and landscaping, and finishing-off of the road and road reserve.

4. RA Application Processes

Bruno Mokhatu, Roads Authority of Namibia

RA requires that certain procedures be followed, rules adhered to and application forms be submitted for certain activities and developments that are being planned within a proclaimed road reserve by landowners.

- Application for an access point.
- Road removal of development with the road reserve of the proclaimed road.
- Notification form of accident.
- Welding of grid gate rails.
- Grass cutting in proclaimed road reserve running across farm district as well as removal of trees.
- Notice to owner/lessee that land will be entered upon.
- Application to infringe on a proclaimed road.
- Application for installation of a swing/grid gate.
- Letter informing addressee of unauthorised advertising sign/structure outside road reserve visible from proclaimed road.
- Letter instructing removal of advertising sign/structure inside proclaimed road reserve.
- Indemnity against claims: Quarries on private property.
- Application for re-opening, closing, deviation or construction of proclaimed road.
- Application for erection, fencing off, conversion or improvement of fence along trunk, main or district roads.
- Maintenance of road reserve fences.
- Removal of animals present in road reserve.

All pipelines that cross the existing road that have not been indicated with signage or have been registered with RA are illegal and the contractor cannot be held responsible for damage to these pipelines during road construction, if they have not been made aware of their location, regardless of how old these pipelines are, they need to be registered with the RA.

5. Questions & Answers

Verikomba Kanguatjivi: Where are RA applications for pipelines done?

Response (Bruno): RA offices in Gobabis. I will see that we get some application forms to the Aminuis constituency office.

L Bendt: In Aminuis there is a pipeline that crosses the road.

Response (Bruno): if there are boreholes that have been drilled by the Ministry of Agriculture, Water and Land Reform (MAWLR) they need to hand in the application form for the pipeline to the RA.

Eben Muniaro: Material is being taken and not paid for in the reserve, but on commercial farms people are being compensated.

Response (Bruno): No, material is not being paid for unless that the owner's activities are prevented and property is being destroyed where material is being taken, then they will be compensated.

Verikomba Kanguatjivi: Are people compensated for water?

Response (Bruno): Water is not being paid for if RA drills the boreholes, if it is an existing borehole that was drilled by the community or an individual the water will be paid for in accordance with the national rates.

C Mafunga: Employment of community. Please do not make the same mistakes that were done during the MR91 construction where there have been numerous strikes, even today. We need the tar road but the project has stopped because people are striking.

C Dirks: If I live next to the road and I want an access point to my house, is that what I need to apply for?

Response (Bruno): Yes, applications for access points must be submitted to the RA office.

Mongake Vincent: If the community asks for an access road of 5km at Okambepera, what is the chance of that being granted?

Response (Bruno): All access points need to be applied for and access points need to be at least 300m apart.

Verikomba Kanguatjivi: Would like to inform the RA that in the past numerous pipes that cross the road have been damaged which have not been applied for.

Response (Bruno): Noted.

C Dirks: Could you please explain to the people of Hugus where the road will be constructed? People have been coming into Hugus and taking measurements and nothing has been explained to the community and what the engineers are busy doing. People are scared that their houses will have to be relocated, the community of Hugus mainly consist of elderly people.

Response (Rodney): Measurements have been taken to determine where the road must go.

Response (Maike): We take note. The measurements assist the engineers with the road design, once this has been finalised it will be communicated to the community.

Verikomba Kanguatjivi: We would like to ask that boreholes are being left for the community to use. Who do we need to speak to?

Response (Bruno): You need to speak to RA. In reserves, if boreholes are left for further use, they are being given to the community and not to individuals.

D Leberake: We will inform the community that they have to apply for the pipelines that cross the road.

L Bendt: Who will show us where pipes should cross the road?

Response (Bruno): RA, the Gobabis office. I will arrange that application forms are available at the constituency office.

Mongake Vincent: Old pipes that are crossing the road that have been there for more than 40 years, what about those?

Response (Bruno): If the RA does not know about them, they are illegal, regardless of how old they are.

Eben Muniaro: I don't think that there will be any environmental impacts to construct this road because it will follow the old road. We are looking forward to the road.

C Mafunga: Older people should also be entitled to work on these projects. I am a 60-year-old lady and would like to do administrative work on a project like this.

Response (Rodney): The employment will be done through the Councillors Office and the contractor employs people based on lists with names that they receive.

E Dirks: Please explain the access points/roads. Do we need to apply for a road to our church?

Response (Bruno): Any access road that leads to a farm or house etc. The distance between two access points must be more than 300m. Speak to the contractor once they are on site, they might be able to do this as a social responsibility.

C Mafunga: We don't know what the engineers are doing in the area.

Response (Bruno): The consultants will come back to the community to discuss plans and where necessary compensation.

Verikomba Kanguatjivi: Will there be corridors/fences along the road? What about the cattle on the road?

Response (Maike): There are guidelines that will determine if fences will be put up or not. We take note of your concern and will pass this on.

Joachim Serogwe: A corridor/fence has been requested in a letter to the RA/engineer. People here will look after fences; these will help avoid accidents.

Response (Maike): Noted, please send me a copy of the letter.

Mongake Vincent: Is fencing restricted to the main routes or will it also be put up along the district roads?

Response (Bruno): We will enquire and revert. We have seen on the main road between Grootfontein and Gobabis that the corridors that have been put up are not being used and fences have been removed in places.

End of meeting 15:50



MINUTES OF THE MEETING HELD AT CORRIDOR 13



Notice of Environmental Impact Assessment for the upgrading to low volume seal standards of access roads DR3815 (DR1004), DR3816 and DR3824

Meeting Minutes

Type of Meeting: Public Consultation Meeting
Venue: Bakgalagadi Traditional Authority Hall (Corridor 13)
Time: 09h38 – 11h15

Agenda

7. Welcome – Maike Prickett / Beatus Monchwe
8. Environmental Impact Assessment (EIA) – Maike Prickett
9. Project Scope – Rodney Gawiseb
10. RA Application Processes – Bruno Mokhatu
11. Q&A
12. Conclusion – Maike Prickett

6. Welcome Maike Prickett, Consulting Team
Beatus Monchwe, Aminuis Constituency Office

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10. Questions & Answers

Chief Hubert Ditshabue: I would like to give thanks for the tar road and the development it brings to the community. Words need to be honoured and the consultant/contractor must work together with the community. We ask that the boreholes that are being drilled are left for the community after the project has been completed.

Verinuka Black: What guarantee do we have that our community will benefit from the road construction through employment?

Response (Rodney): Employment will be done through the Councillors Office.

Response (Mr Monchwe): The procedure followed is that traditional leaders are being asked to give a list of names which are then given to the contractor, this is for unskilled labour. Skilled labour is being advertised.

Sam Katjiperue: Thank you to the delegation for being here.

1. The road must get a corridor/fence.
2. Boreholes should not be drilled everywhere, and contractors must speak to the community before commencing with drilling. A common problem is that communities settle close to the water source (borehole) and are not willing to share water with other communities.
3. Roads Authority should give the boreholes to the communities and not close them up.

Response (Bruno): The boreholes will become RA property if they were drilled by RA. Once the project has been completed, the community can use the boreholes, but they will have to do their own installations because the contractor usually removes his borehole pump upon completion, unless otherwise agreed. Boreholes are usually given to the community(ies) and not to individuals.

Elias Nderura: Borehole pumps should be given to the communities.

Verinuka Black: Homesteads next to the road that are not 100m away, many people are not aware of the proximity rule from road to house/fence (as was indicated by Bruno during the RA Application process presentation). People should be informed of these rules.

Response (Bruno): Apology. These rules are part of the road ordinance.

Ady Riruako: What is the standard with regards to fencing along roads?

Response (Bruno): Not sure, but roads in the reserves are not usually fenced.

Sam Katjiperue: If there are no fences being put up and cattle cause accidents owners are being held liable.

Chief Hubert Ditshabue: Fences should be put up along the tar road to prevent animals from causing accidents.

Response (Maike): We take note of your concern and will convey this to the client.

Ady Riruako: Is there provision being made for road signs, indicating next locality at intersections?

Response (Bruno): Applications for these need to be done. I am not sure if this was included in the project.

Elias Nderura: Who do the engineer/contractor speak to regarding houses being in the way of the road?

Response (Rodney): The owners as well as the traditional leaders will be consulted.

Elias Nderura: How will job appointments be handled?

Response (Rodney): Through the Councillor's Office for the unskilled. Skilled jobs will be advertised, and people brought in from outside.

Verinuka Black: It should be taken up with the Councillor's Office, because the appointments on MR91 were not done according to the lists submitted by the traditional leaders.

Sam Katjiperue: Thank you to the delegation for calling the meeting and we are looking forward to the road.

End of meeting 11:15

