

ENVIRONMENTAL SCOPING REPORT AND ESMP



2015

THE REHABILITATION OF SECTION A (87.3KM) OF TRUNK ROAD
1 SECTION 2 AND 3 GRÜNAU – KEETMANSHOOP – MARIENTAL,
//KARAS AND HARDAP REGIONS



ENVIRO MANAGEMENT CONSULTANTS

PO BOX 11574 - WINDHOEK

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1. EXECUTIVE SUMMARY

The Roads Authority of Namibia appointed a Joint Venture between Element Consulting Engineers (Pty) Ltd, WML Consulting Engineers and UWP Consulting (EWU JV) to perform consultancy services for the detail design, tender documentation, contract administration and site supervision for the rehabilitation of TR1/3 (B1) between Tses Intersection and Gochas Intersection in the //Karas and Hardap Regions.

Enviro Management Consultants Namibia was then appointed by the Joint Venture to conduct a site visit, facilitate the Public Participation Process and identify and assess the environmental impacts this proposed project will have on the socio-economic and bio-physical environment. Furthermore to compile an Environmental Management Plan to avoid or mitigate any negative environmental impacts and enhance the positive impacts associated with this project.

The proposed project sets out to widen the existing road surface from a varying 6-7 m surfaced carriageway to a 12.4m wide formation with a 9.4m surfaced carriageway with two 1.5m wide gravel shoulders. This further means that the existing bridges and water cause ways will also be widened.

During the EA process the concerns of the Local Communities as well as other Stakeholders were considered and all relevant natural environmental considerations were also taken into account.

We are convinced that this project will not have a detrimental negative impact on the environment and that the positive impacts associated with this project will outweigh the negative impacts associated with the construction and operational phases of the roads.

2. INTRODUCTION

Enviro Management Consultants Namibia is appointed by the Joint Venture between Element Consulting Engineers (Pty) Ltd, WML Consulting Engineers and UWP Consulting (EWU JV), on behalf of the Roads Authority of Namibia, to conduct a site visit, assess the environment and compile the Environmental Scoping report indicating the impacts this proposed project will have on the socio-economic and bio-physical environment.

This environmental assessment process focuses on Section A, which stretches from intersection DR 619 leading to Tses (RMS Km 81.29) to the intersection MR 32 leading to Gochas (RMS Km 168.59), for a total length of 87.3km. The road section partly falls in the Karas Region in the south and the Hardap Region to the north.

It is the intention of the design team to stay on the existing alignment as far possible therefore limiting the environmental impacts associated with clearing of vegetation.

A site visit was conducted during the month of September 2015 to determine the possible sensitivity of the area. Due to the fact that the existing alignment will be used during the upgrade it is envisaged that there will be limited negative impacts associated with this project.

There were no environmental specialist investigations conducted for the purpose of this Environmental Assessment Report.

3. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

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

NAMIBIAN LEGISLATIVE FRAMEWORK

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

- Environmental Management Act, 2007; Act 7 of 2007 ;
- Environmental Regulations of 2012;
- Roads Authority Environmental Manual

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

Table 1: Listed Activities in Terms of the Environmental Management Act

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

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

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

Table 2: 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.
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

Statute	Provisions	Project Implications
		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 24 of 2004	<p>Section 32 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 46 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 56 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 60 of the Act. Where "effluent" means any liquid discharge as a result of domestic, commercial, industrial or agricultural activities.</p> <p>Section 78 states that a person may not engage in any construction activity that impounds, blocks or otherwise impedes the flow of water in a watercourse without the Minister's written approval authorising such activity.</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.

4. PROJECT DESCRIPTION

4.1 Overview

The 228 km of road section from Keetmanshoop, located in the Karas Region, to Mariental in the Hardap Region, are part of the Namibian national trunk road network, which connects the harbour of Walvis Bay and Windhoek as well as the northern neighbours (Angola and Zambia) with South Africa.

The road section therefore serve as part of the transit corridor from South Africa to Namibia's northern neighbours and are thus not only of local, but of regional importance.

Section A, to be rehabilitated, stretches from intersection DR 619 leading to Tses (RMS Km 81.29) to the intersection MR 32 leading to Gochas (RMS Km 168.59) the section is 87.3km in length. The road section partly falls in the Karas region in the south and the Hardap Region to the north. The alignment of the rehabilitation project will keep as far as possible to the current alignment of TR 1/3 to minimize cost.

The Karas Region is the largest political region in Namibia, covering 161,514 km², with one of the smallest populations, 76,000 people at the 2011 census. The Hardap Region is covering 109,781 km² and its population is of a similar size, 79,000, in 2011.

TR1/3 has been identified for rehabilitation as part of the Feasibility Study for the rehabilitation of TR1/2 Grünau – Keetmanshoop & TR1/3 Keetmanshoop – Mariental (Volumes 1 and 2) (WML Consulting Engineers)(May 2013).

The objectives of this project can be summarized as follows:

- Improve road user safety,
- Improve road transport efficiency,
- Reduce road user costs,
- Reduce road maintenance costs,
- Improve general network, inter-regional and international connectivity.

The upgrading will generally entail the following:

- The rehabilitation of bitumen standard road,
- The improvement to vertical and horizontal alignment where required,
- The improvement of road width,
- The upgrading of all intersections in accordance with the relevant specifications,
- Improvement of the drainage facilities along the route,
- Improvement of road furniture,

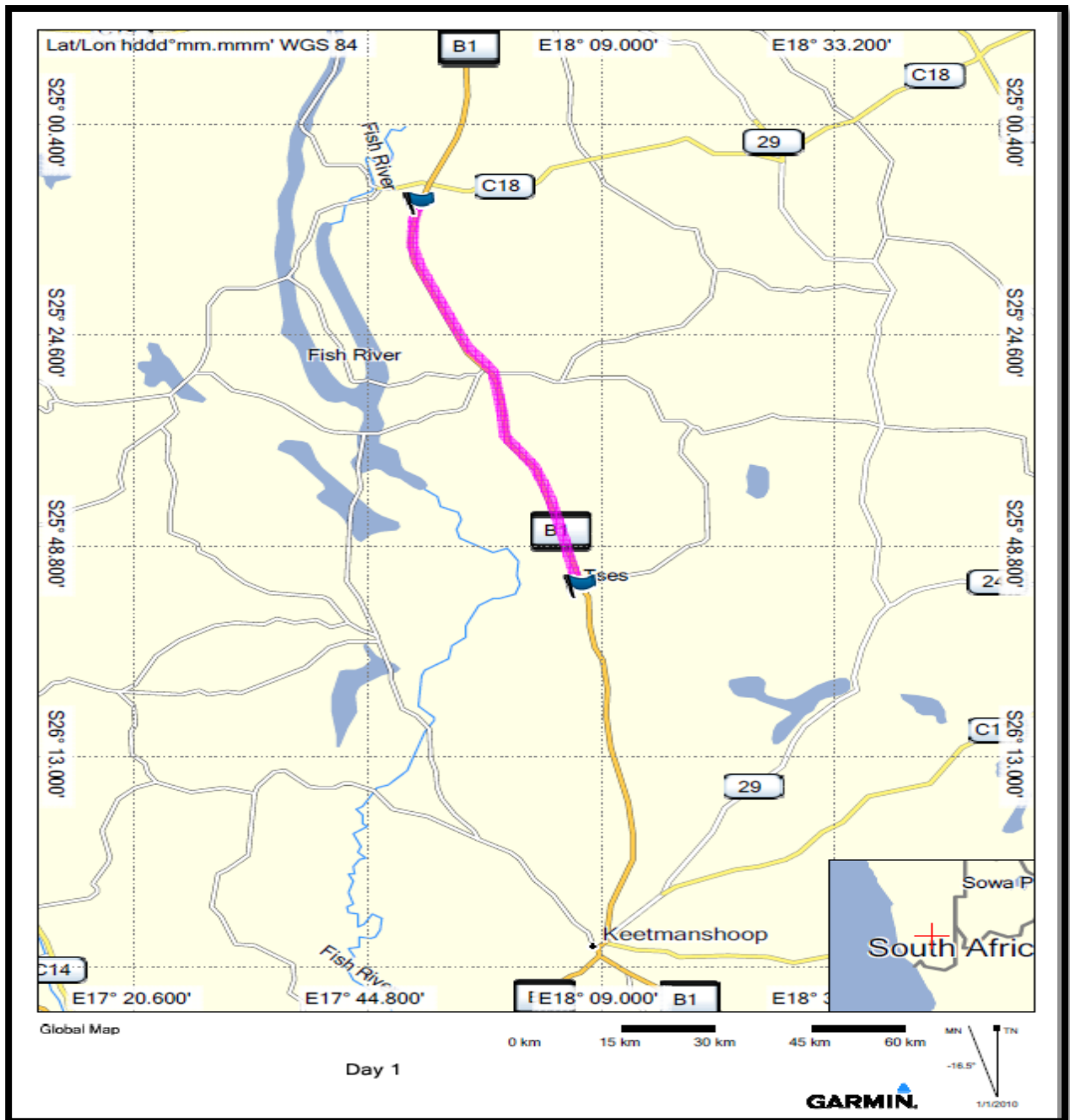


Figure 1: Locality Map

5. EXISTING ROUTES

5.1 Description of the Existing Road

Section A, to be rehabilitated, stretches from intersection DR 619 leading to Tses (RMS Km 81.29) to the intersection MR 32 leading to Gochas (RMS Km 168.59) the section is 87.3km in length. The road section partly falls in the Karas region in the south and the Hardap Region in the north. The alignment of the rehabilitation project will keep as far as possible to the current alignment of TR 1/3 to minimize cost.

5.2 Drainage

Currently the road has various drainage structures in place as per the table below. The drainage will be reviewed and compared with the latest drainage manual as compiled by the Roads Authority.

Table 3: Current drainage structures on TR 1/3

Bridges		
Bridge Name	Bridge Number	Distance from Keetmanshoop
Tses River Bridge	B0209	Km 81.26
Springbokvlak River Bridge	B0210	Km 87.12
Trib Nauchas River	BM1007	Km 104.45
Brukkaros River Bridge	B0211	Km 105.76
Diep River Bridge No. 1	B0212	Km 114.52
Diep River Bridge No. 2	B0213	Km 114.82
Asab River Bridge No. 1	B0098	Km 130.56
Asab River Bridge No. 2	B0096	Km 130.79
Grundorn River Bridge No. 1	B0110	Km 134.56
Grundorn River Bridge No. 2	B0104	Km 135.40
Trib. Grundorn River	B01006	Km 155.34

Large & Major Culverts		
Culvert Number	Description	Distance from Keetmanshoop
CL1167	Large Culvert	82.14
CL1166	Large Culvert	82.79
No Number	Large Culvert	82.97
CL1165	Large Culvert	83.34
CL1164	Large Culvert	86.82
CM1163	Major Culvert	88.48
CL1162	Large Culvert	89.03
CM1161	Major Culvert	89.35
CL1160	Large Culvert	90.15
CL1159	Large Culvert	90.44

CM1158	Major Culvert	90.53
CL1157	Large Culvert	91.10
CM1156	Major Culvert	92.26
CL1155	Large Culvert	93.92
CL1154	Large Culvert	94.65
CM1153	Major Culvert	95.05
CL1152	Large Culvert	96.18
CM1151	Major Culvert	96.77
CL1150	Large Culvert	97.74
CL1149	Large Culvert	98.02
CM1148	Major Culvert	98.49
CL1147	Large Culvert	99.26
CL1146	Large Culvert	99.89
CL1145	Large Culvert	100.52
CM1144	Major Culvert	101.96
CL1143	Large Culvert	102.10
CL1142	Large Culvert	103.26
CM1140	Major Culvert	105.86
CM1139	Major Culvert	105.99
CL1138	Large Culvert	106.28
CL1137	Major Culvert	107.69
CM1136	Major Culvert	109.65
CM1135	Major Culvert	111.24
CL1134	Large Culvert	111.81
CL1133	Large Culvert	112.91
CL1132	Large Culvert	113.66
CM1131	Major Culvert	114.58
CL1130	Large Culvert	129.32
CM1129	Major Culvert	133.94
CM1128	Major Culvert	134.37

CL1127	Large Culvert	136.01
CL1126	Large Culvert	138.73
CL1125	Large Culvert	139.86
CM1124	Major Culvert	140.96
CM1123	Major Culvert	144.27
CL1122	Large Culvert	146.29
CL1121	Large Culvert	147.67
CL1120	Large Culvert	147.85
CL1119	Large Culvert	150.39
CL1118	Large Culvert	150.54
CL1117	Large Culvert	151.00
CM1116	Major Culvert	151.18
CL1114	Large Culvert	156.48
CL1113	Large Culvert	156.96
CL1112	Large Culvert	157.08
CM1111	Major Culvert	157.86
CM1110	Major Culvert	159.08
CM1109	Major Culvert	159.30
CM1108	Major Culvert	162.94
CM1107	Major Culvert	166.87

The Regional Engineer Mr. Blaauw indicated that some of the structures have overtopped in the past and careful attention will be given to these structures.

6. ENVIRONMENTAL AND SOCIAL BACKGROUND

Trunk Roads TR 1/3 from Keetmanshoop to Mariental passes through the Karas and Hardap Regions.

6.1 Overview

The Karas Region is the largest political region in Namibia, covering 161,514 km², with one of the smallest populations, 76,000 people at the 2011 census. The Hardap Region is covering 109,781 km² and its population is of a similar size, 79,000, in 2011.

6.2 The Natural Environment

The greater part of both regions is situated in the climatic regions defined as either desert or arid shrub land.

The average annual rainfall in the project area is very low, with the western coastal areas receiving less than 50 mm, increasing eastwards from 150 mm to 200 mm around TR 1/3. The south-western part of the Karas Region receives an annual winter rainfall, making this area quite suitable for grape production.

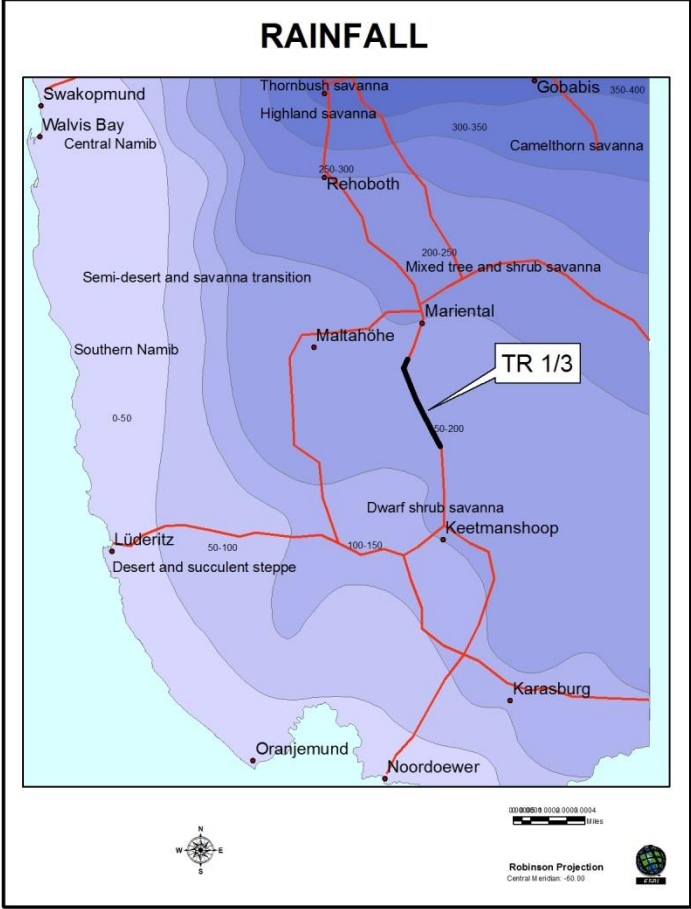
Temperatures in the east, where the project is situated, and reach summer average maximum temperatures of 34 - 40°C. Winters are cooler and temperatures can drop to below zero at night.

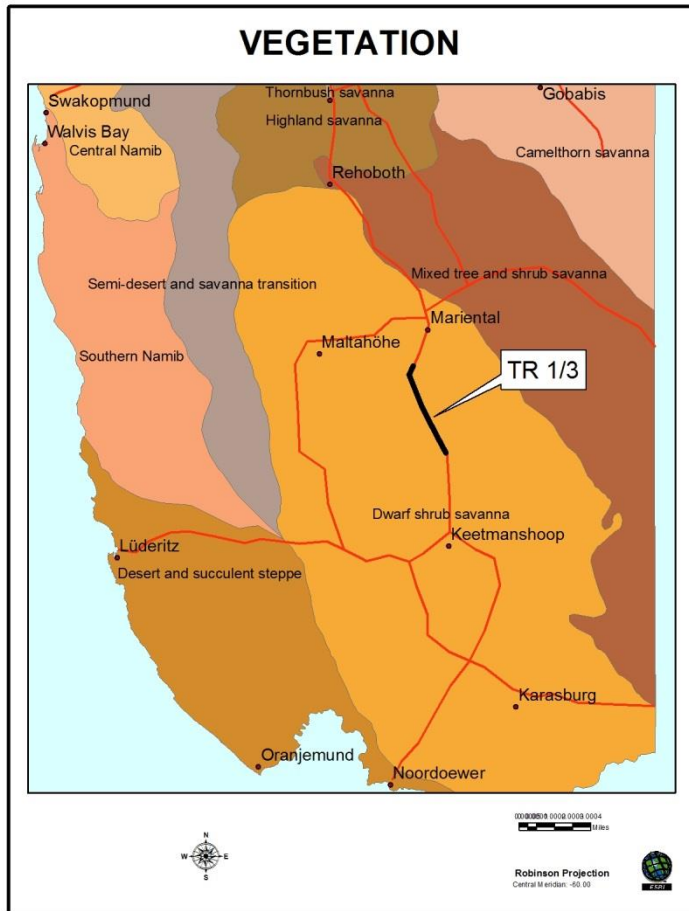
The dominant vegetation and plant communities, between Keetmanshoop and Mariental, are classified as the Nama Karoo biome. It is grassland and Shrubland which is divided into the Dwarf Shrub Savannah, the Dwarf Shrub (Southern Kalahari Transition) and the Karas Dwarf Shrubland (Mendelsohn 2009).

These areas are characterized for having very low biome production rates, plant diversity and low plant endemism.

The most important plant species to be found in the area is the Quiver tree (*Aloe dichotoma*), but this tree is not found in the road reserve.

It is important however that attention should be given when opening new borrow pits.





Tree cover is 0.34 %, shrub cover 2.3 %, dwarf shrub cover 3.61 %, grass cover 3.66 % and herb cover 1.38%. On average the total cover is 11.3 %. The structure varies between at all open shrub lands to a low open shrub land, with occasional low open to sparse woodlands (Strohbach 2001).



The Orange-Fish River Basin, including the Fish River basin, covers a large part of the Karas Region and originates from the Hardap Region. The Hardap Irrigation Scheme has been developed around the large Hardap Dam on the Fish River, near Mariental.

The Naute Dam, close to Keetmanshoop, provides water for the town as well as to the Naute Dam Irrigation Scheme. In both regions, with the exception of water provided by surface sources and a few seasonal farm dams, all water used for domestic and agricultural purposes comes from groundwater. Water resources can be scarce and sometimes of poor quality.

6.3 Population

The Karas Region, with 76,000 people in 2011, was the least densely populated region of Namibia with a density of 0.5 people per km². Even at that time, there were slightly more men than women in the region, with 103 males to every 100 females.

The Hardap Region has a population density of 0.7, people per km², with a similarly equal balance of 105 males to every 100 females. Since 2001, Hardap had an annual population growth rate of 1.6 %, which is in line with the country average.

In Karas, the annual population growth rate since 2001 of 1 % is lower. A high population growth rates is however found in the regional capital of Keetmanshoop. Since the population in the Karas Region is small, the relative influence of economic developments of magnitude on the size of the population is considerable (MLRR 2011).

6.4 Economy and Livelihood

According to the 2004 Household and Income Survey, much of the useable farming land in Hardap is held in freehold farms, the majority being 5,000 – 10,000 hectares in extent. Throughout the region, livestock farming occupies most of the land area, although only 31 % of the employed population is employed in the agricultural sector. The public and private services sector is the largest economic sector, employing almost 50 % of those employed in 2001.

Of the Karas Region as a whole, about 61 % of all employed people are employees in the private sector, of whom two thirds are males. Government employs a further 27 % of all employees. About 4 % of those employed are in small businesses and only 3 % are in subsistence farming.

In Karas, approximately 60 % of the land belongs to commercial / freehold farms, 10 % to communal farms / land and the remaining 30 % is Government owned land, which includes protected parks and resettled farms. Of the 1,827 commercial farms in the region, 66 farms have been purchased for resettlement between 1990 and 2010. Most farming in both regions is extensive small-stock farming of goats and sheep, with some game, cattle and donkeys.

The economy of the Karas Region is essentially driven by the mining industry (diamonds at Oranjemund and along the coast up to Lüderitz, as well as zinc at Rosh Pinah), commercial agriculture (livestock farming predominantly to the east, as well as irrigation farming at Naute Dam and along the Orange River), a large non-tradable sector (government services) and increasingly by tourism (MLR 2011).

The region has much to offer by the growing tourism industry such as the newly proclaimed Sperrgebiet National Park, the Fish River Canyon and the Namib-Naukluft Park.

6.5 Road and Rail Infrastructure

The Karas Region has a relatively well developed infrastructure network. Due to the size of the region, much of these services are located within the bigger urban areas such as Keetmanshoop, with the road network being relatively comprehensive throughout the region.

The project road sections provide the central north-south transport corridor, connecting the south of Namibia with the Khomas Region to the north, and to South Africa in the south. Most of Namibia's imported goods from South African commercial centres, such as Cape Town, Upington as well as the greater Gauteng area are imported by road along Trunk Road 1.

Urban areas such as Keetmanshoop provide important supporting services to the transportation industry, such as fuel, motor repair and accommodation.

Namibia's north – south rail line runs parallel with Trunk Road 1, linking Walvis Bay and Windhoek with Keetmanshoop and South Africa. From Keetmanshoop a rail link to Aus and Lüderitz has been constructed, but the Aus – Lüderitz section is currently not operational as it is in the process of being re-constructed. The Aus – Keetmanshoop rail link currently plays an important role in transporting ore from the mines at Rosh Pinah to the South African smelters. Once the Aus – Lüderitz rail section has been rehabilitated, the harbour town of Lüderitz can be re-connected to the national rail system.

6.6 Trends and Projects that may influence the Project

The Karas Integrated Regional Land Use Plan identified a number of potential synergies between land uses, as shown in Figure 1. The synergies are between:

1. Tourism that focuses on game farming, conservation and accessing National Parks;
2. Livestock farming and tourism that focuses on game farming, conservation;
3. Tourism and fishing;
4. Proposed Neckartal Dam irrigation scheme and tourism, also agri-tourism and irrigation at the Naute dam;
5. The Southern Tourist Forum Area (STFA), once developed, holds potential for investment and job creation;
6. Developing urban centres as markets that increase the potential for agriculture, tourism; and
7. The Orange delta is a wetland of international importance.

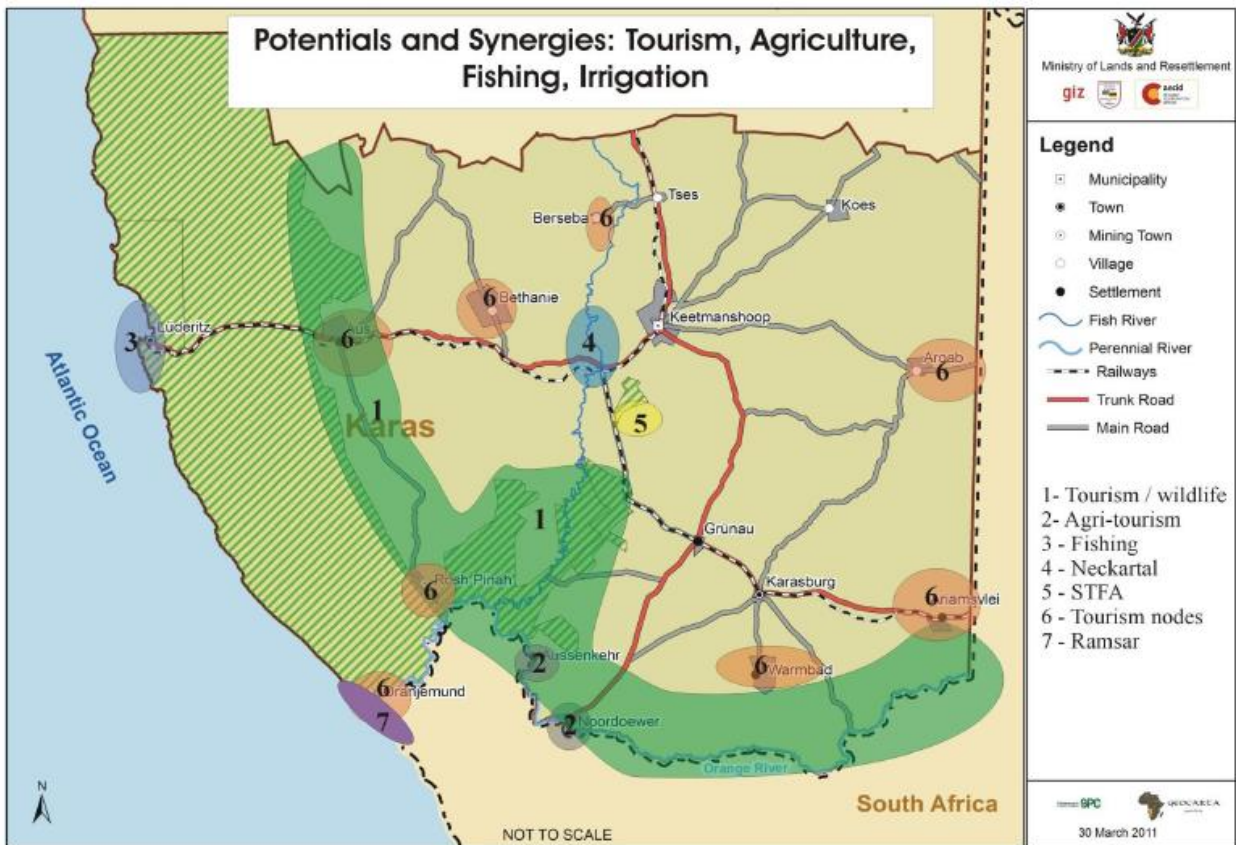


Figure 2: Potential Synergies between Main Land Uses in Karas

Although the above land use may generate some extra traffic, it is unlikely to be of major significance. An exception may be the Neckartal Dam project during its construction.

6.7 Other Proposed Large Scale Infrastructure Projects

Other large projects have been proposed for the project area and are in various stages of study. They include the Kudu Gas Power Project, a hydro-electricity project on the Orange River, upgrading of the Bethanie – Maltahöhe – Solitaire - Walvis Bay Road, a bridge at the Fish River Confluence, a Trans-Kalahari Railway line and renewable energy projects such as wind farms. It is unlikely that any of these will have a significant impact on the road sections in question.

6.8 Tourism Development

Namibia's international tourism is closely linked to the global economic climate. In 2010, the number of tourists visiting Namibia was 984,000, a drop of 2.8 % on 2009, which also saw a drop of 2.7 % on 2008. There has been a decrease in regional tourists since 2005, while visitors from Europe increased by 4.5 %. According to statistics obtained from the Namibia Tourism Board (NTB) for 2008, 18 % of tourists (160,000) entered Namibia through the southern border posts.

In 2007, there was an average of between 76 and 91 accommodation establishments in the Karas Region registered with NTB, with camping sites being the highest number. In 2009, this had dropped to only 35 establishments providing data to the NTB. A total of 100,340 tourists

overnighted (bed nights) in the Karas Region during 2009, compared to 243,414 in 2007, recording an average bed occupancy rate of 30 % in comparison to 32 % during 2008.



Pictures of the current alignment and infrastructure (bridges and culverts) found alongside the route.



7. PUBLIC PARTICIPATION PROCESS

From the start of the project it was clear that there are not any negative socio-economic impacts associated with this project. The communities alongside the route are well aware of the proposed upgrade of the road and the Engineers communicated the proposed project to the relevant leaders and politicians. The upgrading of the road will have a positive socio-economic effect on the communities.

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:

The proposed upgrading of the road was advertised twice in two different newspapers as to comply with the Environmental Management act No.7 of 2007 and the applicable Environmental Regulations.

The advertisements were placed as follows;

The New Era:	Thursday 13 th August 2015
	Thursday 10 th September 2015
The Republikein:	Thursday 13 th August 2015
	Thursday 10 th September 2015

There were no comments received after the notifications placed in the newspapers.

Consultations were conducted for the Hardap and Karas Regions where the general public, CRO's, Councilors and the Governors were invited to attend meetings informing them of the proposed upgrade of TR1-3. These meetings were facilitated by a team from Element Consulting Engineers and the Roads Authority of Namibia.

The first meeting was held on the 17th August 2015 at the **Hardap Regional Offices**. This meeting was well attended with very positive feedback received from the stakeholders.

The second meeting was held on the 18th August 2015 at the **Karas Regional Offices** where the detail design of the proposed project was presented to the Council. The presentation was well received and applauded by the stakeholders.

PICTURES TAKEN DURING THE PUBLIC MEETINGS



PROOF OF PLACEMENT OF ADVERTISEMENTS

Donderdag 10 September 2015

Republiek

TENDERS EN VAKATURES 45

NOTICE OF AN ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

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

ROADS PROJECT: DETAIL DESIGN, TENDER DOCUMENTATION, CONTRACT ADMINISTRATION AND SITE SUPERVISION FOR THE REHABILITATION OF SECTION A (87.3KM) OF TRUNK ROAD 1 SECTIONS 2 AND 3: GRUNAU-KEETMANSHOOP-MARIENTAL, IKARAS AND HARDAP REGIONS

The Section of road that will be rehabilitated starts at the intersection of the B1 and MR08 (Berseba) and travels on the B1 towards Mariental up to the intersection of the B1 and C18 (Gochas) for a total distance of 87.3 kilometers.

Two scheduled Stakeholder Meetings will be held to inform interested and Affected Party of the proposed project.

- The first meeting will be held at the Hardap Regional Offices on the 17th August 2015.
- The second meeting will be held at the IKARAS Regional Offices on the 18th August 2015.

If you were not able to attend these meetings and you consider yourself as an interested and affected Party you are hereby invited to register in terms of the environmental assessment process and to give input, comments or opinions regarding the intended road rehabilitation.

Please address your registration to the following contact details:

Enviro Management Consultants Namibia
Contact: Rian du Toit
Fax: 088 629586
Email: enviro@mc@enviro.na

KARIBIB TOWN COUNCIL
Office of the Chief Executive officer

Tel: (+264 64) 550016
Fax: (+264 64) 550032

29Kalk Street P.O. Box 19
Karibib, Namibia

CONFIRMATION OF OWNERSHIP TO PROPERTIES

Karibib Town Council as per its Council Resolution No. CM 068/13/MS/2015 is hereby notifying all residents that the council has been instructed to furnish Council with the proof of ownership and the date as to when they intend to commence with the development of these properties on or before the 25th September 2015. If you do not comply with this deadline, the council reserves the right to proceed with the development of these properties on your behalf.

Ms. Helene Kuhnert at Tel: 064 550016
Email: info@karibibtowncouncil.na

August 19 2015 | NEW ERA

Urges Libyan factions create unity government

TRIPOLI

United Nations special envoy to Libya called the country's warring parties on Tuesday to form a unity government to end the conflict and end the risk that the talks, which have for almost a year, have no involvement as the nation's warring, Libya's rival governments are against a suspected Islamic State position.

Split between two governments backed by one fighting each other but which control the country, Islamic State and other armed groups led a growing security vacuum on the ground.

Even an alliance of armed groups, drove a jointly recognised government out of the oil, and declared its own government a year ago, the country is on the verge of anarchy. Libya is facing now a deeper chaos and it is hoped all the Libyan factions will be wise, a scenario, to expedite the talks and to prevent very soon, the UN's Bernardino posed two days of talks in Geneva, told the UN.

It is important to have this time-line, of armed groups on security arrangements, said Leon said. Some Libyan factions signed a N-sponsored agreement in Marrakech on Tuesday to form a unity government and end fighting. A meeting in parliament in Tripoli, the General Congress, stayed away from that by taking Geneva talks, then to last possibly by the UN. The UN proposal calls for a one-year of national accord in which a council of advisors by a prime minister and two deputy executive authority.

He has been dragging on without a major

of the city in spring.

A helicopter belonging to the official government also attacked Islamic State on the outskirts of Derna, a military spokesman said. The militants have been trying to retake Derna after a rival group expelled them in June - *Namibia Post*

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Libyan Prime Minister Abdullah al-Thinni

NOTICE OF AN ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

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

ROADS PROJECT: DETAIL DESIGN, TENDER DOCUMENTATION, CONTRACT ADMINISTRATION AND SITE SUPERVISION FOR THE REHABILITATION OF SECTION A (87.3KM) OF TRUNK ROAD 1 SECTIONS 2 AND 3: GRUNAU-KEETMANSHOOP-MARIENTAL, IKARAS AND HARDAP REGIONS

The Section of road that will be rehabilitated starts at the intersection of the B1 and MR08 (Berseba) and travels on the B1 towards Mariental up to the intersection of the B1 and C18 (Gochas) for a total distance of 87.3 kilometers.

Two scheduled Stakeholder Meetings will be held to inform interested and Affected Party of the proposed project.

- The first meeting will be held at the Hardap Regional Offices at 11:00 on the 17th August 2015.
- The second meeting will be held at the IKARAS Regional Offices at 9:00 on the 18th August 2015.

If you were not able to attend these meetings and you consider yourself as an interested and affected Party you are hereby invited to register in terms of the environmental assessment process and to give input, comments or opinions regarding the intended road rehabilitation.

Please address your registration to the following contact details:

Enviro Management Consultants Namibia
Contact: Rian du Toit
Fax: 088 629586
Email: enviro@mc@enviro.na

Dinsdag 13 Augustus 2015

Republiek

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Fax: 088 629586
Email: enviro@mc@enviro.na

Oupa Eli / Khunuchab
Tel: 064 550016

Thursday September 10 2015 | NEW ERA

MARKET OVERVIEW

Money Market	Change	Latest
3 months	0.00%	6.30%
6 months	-0.05%	6.90%
9 months	-0.09%	7.25%
12 months	-0.10%	7.55%

Bonds	Change	Latest
GC17 (R203 : 7.34%)	-0.04%	7.98%
GC18 (R204 : 7.7%)	-0.04%	8.53%
GC21 (R208 : 8.09%)	-0.04%	8.94%
GC24 (R186 : 8.44%)	-0.04%	9.36%
GC27 (R186 : 8.44%)	-0.04%	9.49%
GC30 (R2030 : 8.84%)	-0.04%	9.99%
GC32 (R213 : 8.87%)	-0.04%	10.01%
GC35 (R209 : 8.95%)	-0.04%	10.12%

Commodities	Change	Latest
Gold	-0.13%	\$ 1120.37
Platinum	-0.06%	\$ 1003.21
Copper	0.00%	\$ 5345.00
Brent Crude	0.29%	\$ 48.38

Malis Indices	Change	Latest
NSX (Delayed)	-0.03%	1 013.70
JSE All Share	1.17%	50 151.56
SP500	2.51%	1 969.41
FTSE 100	1.94%	6 265.17
HangSeng	4.10%	22 131.31
DAX	1.75%	10 451.06

JSE Sectors	Change	Latest
Financials	1.40%	16 163.18
Resources	4.28%	36 967.92
Industrials	0.57%	64 565.06

FX Rates	Change	Latest
N\$/US dollar	-0.55%	13.6464
N\$/Pound	-0.82%	20.9541
N\$/Euro	-1.04%	15.2154
US dollar/ Euro	-0.47%	1.1150

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Please address your registration to the following contact details:

Enviro Management Consultants Namibia
Contact: Rian du Toit

Comments received during the meetings:

1. Will the new road take into consideration flooding and natural disasters?

A: Bridges and culverts are designed to accommodate flooding scenarios.

2. A technical question on the property rights of the road reserve. To whom does this area belong to?

A: Land belongs to the farmer alongside the road, but the Roads Authority has control of the road reserve.

3. Will there be more boreholes drilled for water?

A: We don't know exactly where we will get water at this stage but the Fish River area is mostly probable. The appointed Hydrologist will indicate the best possible water source to be used.

4. Good planning is essential for roads and bridges!

A: This is true and that is why a Feasibility study was previously conducted for this road from Keetmanshoop to Mariental and this section was identified to be rehabilitated.

5. We here in Keetmanshoop is very happy with the proposed project.

6. Is the road going to be wider?

A: Yes the road will be made wider to 10.2m included of the road shoulder.

8. ENVIRONMENTAL IMPACTS ASSESSMENT PROCESS

It is important to understand the gist of any project as to understand the possible environmental impacts associated with such a project. The following activities are generically associated with the construction of a road. These activities are kept in mind during the environmental impact assessment process.

- **Site establishment**
 - Demarcation of the site
 - Protection of vegetation and natural features
 - Protection of fauna
 - Protection of cultural historical aspects
 - Topsoil conservation
 - De-bushing and de-stumping
- **Site infrastructure**
 - Structures and accommodation
 - Contractors camp and lay-down areas
 - Batching plants
 - Crusher plants
 - Sand washing plants
 - Nurseries
 - Roads and access
 - 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
- **Borrow pits and quarries**
- **Earthworks**
 - Prospecting boreholes and test pits
 - Excavations and trenches
 - Cut and fill
 - Shaping and trimming
- **Stockpiles, storage and handling**
 - Topsoil
 - Spoil
 - Vehicles and equipment
 - Fuel
 - Hazardous substances
- **Erosion control**
 - Surface water management
 - Erosion protection
- **Control of alien plants**

8.1 Environmental Impact Assessment Process

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 3.

Finally, use Checklist of Criteria for Evaluating the Significance of Impacts to help complete Column 4.

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 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 quarry 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.	Clearing of vegetation is always regarded as significant when it comes to road construction. However, mitigation measures can reduce the significance of the impact.
1.3	Creation of new land uses?	No	The new road will be built mostly on the existing alignment.	Low significance.
1.4	Pre-construction investigators egg boreholes, soil testing?	No		
1.5	Construction works?	Yes	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	Flooding in the area is a real risk for road construction. The change in water bodies might be significant if proper planning during the design phase of the road is neglected. The other aspects will not be significantly impacted.
1.6	Demolition works?	Yes	The possible removal of old culverts and bridges.	Very low or no significance if the materials be removed and spoiled.
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 area.
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	Possible storage of machines 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?	No		
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 limited traffic increase due to movement of construction vehicles.	Low significance.
1.19	New road, rail, air, water borne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No	The current alignment will be followed.	The significance will be low due to the scale and current alignment to be used.
1.20	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	Yes	There will be temporary bypasses constructed.	The significance is likely to be low due to the temporary nature of the activities.
1.21	New or diverted transmission lines or pipelines?	No		
1.22	Impoundment, damming, culverts, realignment or other changes to the hydrology of watercourses or aquifers?	Yes	There are existing culverts and drainage lines which will be enlarged..	Should proper planning and consultation with local communities be applied, negative impacts on the hydrology of the flood plain should be limited therefore reducing the significance.
1.23	Stream crossings?	Yes	Various streams and rivers will be crossed.	The significance is low because off their current existence.
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 the rivers and boreholes will be used but the significance will be low.
1.25	Changes in water bodies or the land surface affecting drainage or run-off?	Yes	The road will impact on the surface patterns.	The significance will be low due to existing culverts and bridges that will only be replaced or upgraded.
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 in either temporarily or permanently?	?	It is uncertain what the impact might have on the migration of people in the regions.	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?	Yes	Surface disturbances always impact on the bio-diversity of an area.	There might be low significant impact on the genetic diversity.
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. Soils will be affected and might therefore impact negatively on the agricultural 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 but the significance might be low due to the 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 high 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.	No. The domestic waste can be 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.	No. The quantity of these gasses will not impact 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	The movement from vehicles will generate dust and gaseous emissions as well as the crusher plant.	The impacts might be significant if not managed properly.
5.5	Dust or odours from handling of materials including construction materials, sewage and waste?	Yes	Dust from mineral 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)?	No		
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 might produce noise.	Low significance.
6.4	From blasting or piling?	Yes	Blasting might be conducted which will impact on existing water sources, houses and other receptors in the area.	The blasting might not be significant if it takes place far from people, buildings and existing water installations. If blasting is taking place close to people or existing infrastructure, significant negative impacts may result from blasting.
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		
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7. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or

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.	No. Mitigation measures will limit the risk and therefore the significance.
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 control systems?	No		
8.3	From any other causes?	No		

8.4	Could the project be affected by natural disasters causing environmental damage (eg floods, earthquakes, landslip, etc)?	Yes	Floods are a real treat in this region and could affect the human environment.	The significance might be low due to proper warning systems. The floods are usually not associated with flash flooding.
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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	<p>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:</p> <ul style="list-style-type: none"> • supporting infrastructure • housing development • extractive industries • supply industries • other? 	Yes	No.	
10.3	Will the project lead to after-use of the site which could have an impact on the environment?	No		
10.4	Will the project set a precedent for later developments?	?	Unlikely	
10.5	Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects?	No		

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

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

<p>Question - Are there features of the local environment on or around the Project location which could be affected by the Project?</p> <ul style="list-style-type: none"> • There are no areas protected by law in the vicinity of the proposed site. • No areas were identified that could be regarded as sensitive with reference to bio-diversity or historic importance. • There is a low possibility of features of high historic or cultural importance. • Surface drainage patterns will be addressed through proper engineering design.
<p>Question - Is the Project in a location where it is likely to be highly visible to many people?</p> <p>This road is travelled substantially so it will be seen and used by a large amount of 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 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 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.</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.</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.</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 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>Yes, Flooding is a real possibility during the rainy season. No other environmental problems are envisaged.</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 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.

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 minerals 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
Construction activities.	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	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
New road, rail or sea traffic during construction or operation?	Limited traffic increase due to movement of construction vehicles.	Negative	Low
Impoundment, damming, culverts, realignment or other changes to the hydrology of watercourses or aquifers.	This aspect is probably of greatest concern for this project. The road will be built on a flood plain to the east.	Negative	Low
Stream crossings?	Various streams on the flood plain will be crossed.	Negative	Low
Changes in water bodies or the land surface affecting drainage or run-off?	The road will impact on the surface patterns.	Negative	Low

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	Low
Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, and water supplies)?	Hydrocarbons always pose a risk to the environment.	Negative	Medium
Will the project affect the welfare of people eg by changing living conditions?	The proposed route will impact positively on the vulnerable groups due to improved mobility network	Positive	Medium
Pollution on site (domestic and construction waste).	Pollution of the natural environment (soil and water).	Negative	Low
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	Medium
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 dust and gaseous emissions.	Negative	Medium
Could the project be affected by natural disasters causing environmental damage (eg floods, earthquakes, landslip, etc)?	Floods are a real treat in this region and could affect the human environment.	Negative	Medium
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,	New road will be constructed which will benefit the communities by improving access to schools, clinics and churches.	Positive	Medium

etc?			
	New economic nodes might be established along the routes stimulating the local 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. ANALYSIS OF ALTERNATIVES

The following alternatives were considered during the planning phase of the proposed project:

9.1 Horizontal alignment of the roads:

It was decided for this project that the existing horizontal alignment will be followed. By deciding this, the following impacts will be limited associated with the construction of a new road:

- Minimal impact on the natural environment (trees, soils, rivers, etc);
- Expanding existing culverts and bridges accommodating the surface water drainage patterns;
- Minimal impact on socio-economic activities (agricultural fields, graves, etc);
- Avoidance of structures (houses, power lines, etc).

9.2 Construction Method

The use of heavy duty machines were the only considered means of construction.

9.3 Construction Materials

Various areas were prospected to identify suitable materials for the construction of this road. The availability of suitable material is very important and various alternative sites have been identified for these materials.

9.4 The "No-Go" Option

If this option is executed the status quo of the environment will prevail. The current road will deteriorate to such an extent that it will not be usable.

10. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The Environmental and Social Management Program (ESMP) will be implemented during construction. The ESMP is intended to bridge the gap between the Environmental Impact Assessment (EIA) and the implementation of the project, particularly with regard to implementing the mitigation measures recommended in the Environmental Impact Assessment (EIA). 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 that environmental performance is verified through information 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.

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 (Environmental Control Officer) where necessary.

- Taking appropriate action if the specifications are not followed.
- Ordering the removal of person(s) and/or equipment not complying with the EMP 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.
- Auditing the implementation of the ESMP and compliance with authorization on a monthly basis.
- Undertaking a continual review of the ESMP and recommending additions and/or changes to the document after completion of the contract.

Environmental Control Officer (ECO)

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

- 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, Employer, Contractor and interested and affected 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.

10.3 Environmental Awareness Training

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

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

As a minimum, training should include:

- Explanation of the importance of complying with the ESMP.
- Discussion of the potential environmental impacts of construction activities.
- The benefits of improved personal performance.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the specifics of this ESMP and its specification (no-go areas, etc.)
- Explanation of the management structure of individuals responsible for matters pertaining to the ESMP.
- The contractor shall keep records of all environmental training sessions, including names, dates and the information presented.

10.4 Public Participation

An on-going process of public participation shall be maintained during construction to ensure the continued involvement of interested and affected parties (I&APs) in a meaningful way. Public meetings to discuss progress and any construction issues that may arise shall be held at least every two months and more regularly if deemed necessary by the ER. These meetings shall be arranged by the ECO 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 Environmental Mitigation Measures

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

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
10.5.1 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 consultant 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 consultant together with the ECO.
10.5.2 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 at least 14 days after the site-handover. b. The Contractor shall at every site meeting report on the status of the implementation of all provisions of the ESMP. c. The contractor shall implement the environmental awareness training as stipulated in Section 10.3 above. d. The Contractor shall liaise with the social and environmental consultants regarding all issues related to community consultation and negotiation as soon as possible after construction commences. 	Contractor/ Environmental and Social Consultant to monitor.
10.5.3 HEALTH AND SAFETY	To ensure health and safety of workers and the public at all times during construction	<ul style="list-style-type: none"> a. The Contractor shall submit a strategy to ensure the least possible disruption to traffic and potential safety hazards during construction. b. The strategy should include a schedule of work indicating when and how road crossings (construction at existing intersections) will be made. The schedule should be updated and distributed to all stakeholders. c. The Contractor shall also liaise with the Traffic Authorities in this regard. d. Proper traffic and safety warning signs must be placed at the construction site to 	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<p>the satisfaction of the Engineer and the Roads Authority.</p> <ul style="list-style-type: none"> e. The Contractor must 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. Dust protection masks shall be provided to task workers if they complain about dust. g. Surface dust will be contained by wetting dry surfaces periodically with a water bowser, sprinkler system or any suitable method. This applies 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 3 litres 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 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. Blasting must be done in accordance with Clause 1222 of the Standard Specification of the Roads Authority of Namibia. 	
10.5.4 CONSERVATION OF THE NATURAL AND HISTORICAL ENVIRONMENT	To minimise damage to soil, vegetation and historical resources during the construction phase. This includes soil crusting, soil erosion and unnecessary	<ul 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. b. Detailed instructions and final arrangements for protection of sensitive areas, keeping of topsoil and rehabilitation of disturbed areas shall be made, in line with 	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
	<p>vegetation destruction.</p> <p>Management of water (domestic and construction).</p>	<p>the guidelines in this document. The ECO shall be consulted before any new areas are disturbed which have not yet been visited.</p> <ul style="list-style-type: none"> c. No off-road driving shall be allowed, except on the agreed haul and access roads. d. Vegetation shall be cleared within the road reserve as necessary for the construction of the road, while trees with a trunk diameter exceeding 500 mm (1 meter above ground) shall be left intact. The reserves on either sides of this corridor may not be cleared of vegetation, unless permission is given to do so for detours or access roads. This measure is subjected to the Roads Authority of Namibia specifications with regards to the road reserve. e. A prescribed penalty will be deducted from the Contractors payment certificate for every mature tree removed without approval. f. No trees may be felled or live wood in the project area removed by any member of the construction team, including sub-contractors. Contravention of this arrangement is liable for a prescribed penalty. g. A prescribed penalty will be deducted from the contractor's payment certificate if it is shown that trees and/or branches have been broken down willfully and unnecessarily, or that any plants have been collected illegally, by any of the staff or sub- contractors. h. Trees that need to be trimmed should be done so with the right equipment and aesthetical acceptable. The use of any type of saw is obligatory and the branches of trees will not be broken off by the use of other machinery. i. Where topsoil is available, this must be stockpiled separately in 1,00 m high piles and this used to cover the damaged areas outside the road reserve such as access roads to borrow pits, and clearing and grubbing areas. j. Where compaction has taken place in disturbed areas, these areas must be ripped and covered with topsoil separately kept for this purpose. k. Poaching or collecting of wild animals is prohibited unless a permit has been obtained for legal hunting purposes. l. The killing of any animal (reptile, bird or mammal) is prohibited, unless for legal 	<p>monitor.</p>

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<p>hunting purposes.</p> <p>m. A prescribed penalty will be deducted from the contractor's payment certificate if it is shown that any of his staff or sub-contractors are involved in trapping, hunting or any kind of collecting of wild animals in the vicinity of the work sites. Offenders will be handed to the authorities for prosecution.</p> <p>n. Pipelines for the pumping of construction water shall as far possible run within the road reserve and along existing tracks and other roads.</p> <p>o. Water will not be allowed to be wasted. This includes water required for construction and domestic purposes.</p>	
<p>10.5.5 BORROW PIT MANAGEMENT AND REHABILITATION</p>	<p>To ensure proper soil management (combat soil erosion and promote biological activities).</p> <p>Preserve and manage natural vegetation.</p> <p>To ensure health and safety around the borrow pits (decommissioning phase).</p> <p>To stimulate ecological processes after decommissioning (to stimulate vegetation and other biological activities).</p> <p>To establish borrow pits which is aesthetically pleasing after decommissioning.</p>	<p>a. The removal of material at borrow-pit sites shall be focused where the least significant vegetation exists. If material is only available around significant mature trees (more than 500 cm circumference – 1 meter above ground), clusters of trees should be preserved while suitable material is excavated around them. A 3 meter buffer must be conserved around the cluster of mature trees. The ER shall visit all proposed borrow-pit areas and indicate where and how material may be removed, before works commence. A cluster constitutes 5 or more trees in close proximity (within 20m radius).</p> <p>b. The Contractor shall use safety tape to mark these tree clusters as to avoid confusion or miss-understandings.</p> <p>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 (indication of the mature trees).</p> <p>d. The borrow pit areas will be clearly marked by using brightly painted markers. These markers will demarcate the area where materials might be removed and stored.</p> <p>e. All borrow-pits must be rehabilitated.</p> <p>f. The contractor shall liaise with the applicable local headmen OR residents regarding whether their borrow-pits shall be shaped as water reservoirs during rehabilitation.</p>	<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. At those borrow-pits not to be shaped as reservoirs, topsoil (the top layer of organic material, even if the topsoil is non-existent, the top layer of organic material) at borrow pits shall be stockpiled separately and the stockpile maintained for use at the end of the contract to rehabilitate the borrow pits. h. The top soil shall be marked as to inform the machine operators that the material is top soil and should be left alone for rehabilitation purposes. i. The borrow pits shall be rehabilitated by trimming the sides to a slope not steeper than 30° (1:3) and evenly spreading the top soil over the slopes to allow for the growth of new vegetation. j. All spoil material at the borrow pits shall be neatly shaped and no loose material (oversized) will be left inside the borrow pits. k. Access to borrow pits shall be controlled (using gates or manned positions). l. The borrow pit floor shall be levelled evenly as part of rehabilitation. m. A Borrow Pit Rehabilitation Plan will be compiled indicating the rehabilitation schedule (time-frames) for the various borrow pits to be rehabilitated. n. After the borrow pit has been rehabilitated, the Rehabilitation Checklist will be completed and signed by the relevant parties (See Appendix B). 	
10.5.6 WASTE 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>	<ul 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. A temporary waste site may be demarcated for temporary storage of waste, but this area will be identified and clearly marked. b. The temporary domestic waste site will be fenced off with access control to the area. c. Adequate separate containers for hazardous and domestic waste will be provided on site and at the construction camp. d. The workforce will be sensitised to dispose of waste in a responsible manner and not to litter. e. Waste bins will be placed in and around the construction site to facilitate proper waste management. f. No waste may remain on site after completion of the project. 	<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. 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. h. A demarcated vehicle service area will be provided. This area will have an impermeable floor, oil trap and dedicated wash bay area. All used water will first run through the oil trap before the effluent is allowed to exit. The oil trap will be cleaned on a regular basis to ensure its efficiency. i. 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 through the use of drip trays or other suitable containers. j. 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. k. 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. l. Accidental spills will be cleaned immediately. The contaminated soil will be suitably disposed of in a container suitable for hazardous waste. 	
		<ul style="list-style-type: none"> m. Oil, lubricants, and other hazardous materials will be stored in separate containers (concrete liner, container, or metal or plastic drip tray) and stored for transport and disposal at an approved waste disposal site or for collection by an oil recycling company such as WESCO Salvage (this company collects significant quantities of oil from central locations throughout the country). n. 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 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 	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		<p>rain water drainage.</p> <ul style="list-style-type: none"> <li data-bbox="880 327 1888 416">o. 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. <li data-bbox="880 427 1888 549">p. Bitumen batching areas will make use of drip trays to prevent unnecessary spillage of any bitumen products. Cleaning of spray nozzles should be done on the bypass (if it is gravel) or any other section of the road that is in use. This serves as a dust suppressor. <li data-bbox="880 560 1888 799">q. Should large quantities of bitumen needs to be disposed, it can be done at a borrow pit with the following mitigation measures: (i) the borrow pits area should not be in the road reserve; (ii) The aquifer should not be near the borrow pit floor and the borrow pit must not be situated less than 100m from any stream or river; (iii) a plastic lining will be laid underneath the proposed dumping area and the spoiled bitumen needs to be covered with the same plastic lining as to prevent leaching; (iv) at least three meters of material will be placed on top of the plastic lining. 	
10.5.7 REHABILITATION OF CONSTRUCTION SITE, SERVITUDES AND CLEARED AREAS (WHICH INCLUDES STOCKPILES)	<p>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.</p>	<ul style="list-style-type: none"> <li data-bbox="880 855 1888 911">a. All bunded areas, equipment, waste, temporary structures, stockpiles etc. must be removed from the camp and work sites. <li data-bbox="880 922 1888 1011">b. All disturbed areas shall be reshaped to their original contours; as close as possible to the natural conditions before construction commenced, including the road reserve, detours, construction camps, and temporary access routes. <li data-bbox="880 1023 1888 1078">c. Alien vegetation particularly the Downy thorn apple (<i>Datura innoxia</i>) and Wild tobacco (<i>Nicotiana glauca</i>) that occur in the project corridor must be weeded. <li data-bbox="880 1090 1888 1179">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 (this applies to big trees as mentioned in the ESMP only). <li data-bbox="880 1190 1888 1246">e. Existing borrow pits adjacent to main roads need also be rehabilitated during rehabilitation phase. 	<p>Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.</p>

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 out of interpretation of the conditions of the ESMP, disagreement regarding the implementation or method of implementation of conditions of the ESMP, etc. any party shall be entitled to require that the issue be referred to specialists for determination.
- The Engineer shall at all times have the right to stop work and/or certain activities on site in the case of non-compliance or failure to implement remedial measures.

B) Offences and Penalties

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

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

- 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, will be imposed by the ER on the Contractor and/or his Subcontractors:

- | | |
|-------------------------------------|---|
| a. Actions leading to erosion | A penalty equivalent in value to the cost of rehabilitation plus 20% |
| b. Oil spills | A penalty equivalent in value to the cost of clean-up operation plus a N\$ 3000 fine. |
| c. Damage to indigenous vegetation | A penalty equivalent in value to the cost of restoration plus N\$ 5 000 |
| d. Damage to sensitive environments | A penalty equivalent in value to the cost of restoration plus N\$ 5 000 |
| e. Damage to cultural sites | A penalty to a maximum of N\$100 000 shall be paid for any damage to any cultural/ historical sites |
| f. Damage to trees | A penalty to a maximum of N\$15 000 shall be paid for each tree removed without prior permission, or a maximum of N\$5 000 for damage to any tree, which is to be retained on site. |
| g. Damage to natural fauna | A penalty to a maximum of N\$5 000 for damages to any natural occurring |

animals.

- h. Any persons, vehicles, plant, or thing related to the Contractors operations within the designated boundaries of a "no-go" area N\$4,000
- j. Litter on site N\$1,000
- k. Deliberate lighting of illegal fires on site N\$ 5,000
- l. Any person, vehicle, item of plant, or anything related to the Contractors operations causing a public nuisance N\$1,000

- 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\$10, 000.
- Payment of any fines in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law.
- In the case of a dispute in terms of this section, the Engineer shall determine as to what constitutes a transgression in terms of this document.

10.7 Environmental Monitoring and Auditing

Environmental audits should be conducted at least once every three months during construction. Benefits derived from the 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 audit of a site will cover all management procedures, operational activities & systems, and environmental issues. The environmental audit will be compiled objectively and be conducted by an independent, competent entity.

11. CONCLUSION AND RECOMMENDATIONS

This project does not pose significant environmental risks due to the fact that the existing alignment will be followed. The various negative impacts associated with the construction of roads can be mitigated through effective implementation of the Environmental and Social Management Plan.

Waste management, pollution prevention and control as well as effective borrow pit rehabilitation will prevent any significant long term negative effects associated with this project.

Upgrading of this road will increase the safety of road users due to the width extension of both the road surface and bridges.

Vehicle operating cost will be reduced due to the new road surface therefore having a positive financial effect on the road users from Namibia and the surrounding countries.

12. References

Mendelssohn, J. et al (2002). *Atlas of Namibia*. Ministry of Environment and Tourism. David Philip. Cape Town.

Mendelssohn, J. et al (2000). *A Profile of North-Central Namibia*. Ministry of Environment and Tourism. Gamsberg Macmillan. Windhoek.

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

National Planning Commission. 2011. *Population and Housing Census 2011*. Central Bureau of Statistics. Windhoek

Palgrave, K.C. 2000. *Trees of Southern Africa* Second Revised Edition. Struik Publishers. Cape Town

Strohbach, B.J. 2001. *Vegetation Survey of Namibia. Namibia*. Wissenschaftliche Gesellschaft / Namibia Scientific Society. Windhoek. ISSN: 1018-7677

Van Oudtshoorn, F. (2002). *Gids tot Grasse van Suider-Afrika*. Briza Uitgewers. Pretoria

Other citations were done in the document with references.

APPENDIX A

DAILY QUESTIONS

CONSTRUCTION SITE MONITORING CHECKLIST

Construction site name _____

Environmental/Safety/Health Site Officer Name _____

Date _____

CHECK THE FOLLOWING DAILY ON THE CONSTRUCTION SITE <u>AND</u> AT THE CONTRACTOR'S CAMP				
Category 1: Personal Protective Equipment (PPE), construction site safety, access control and hazardous substance handling				
	Question	Yes	No	If no, describe action taken
1	Have all labourers working today, including sub-contractors, been fully trained in proper health and safety procedures?			
2	Have you conducted a hazard assessment of the worksite and the planned construction activities for today with the Site Foreman and reviewed the EMP/PHPSAP to identify any new issues that might come up during the day?			
3	<p>Are all labourers and staff wearing the required Personal Protective Equipment (PPE)? Minimum PPE includes:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Hard hat <input type="checkbox"/> Safety shoes <input type="checkbox"/> Overalls <p>Certain operations require additional PPE, such as:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Eye protection/goggles/visors <input type="checkbox"/> Face masks <input type="checkbox"/> Gloves <input type="checkbox"/> Ear plugs /ear muffs <input type="checkbox"/> Harnesses 			
7	Are all hazardous substances (eg fuel, paint, oil containers, cement etc) stored in an area marked by			

	danger tape or in a locked room away from public access?			
8	Are any visitors or suppliers expected to visit the construction site today? If so, ensure sufficient PPE is available for their use and that the visitors register is signed when they arrive.			
9	Are labourers and equipment a safe distance away from power lines?			
10	Are extension cords and portable tools in good condition?			
11	Is the first aid kit fully stocked and accessible in case of emergency?			
Category 2: Excavations, stockpiles, storage areas and general housekeeping				
	Question	Yes	No	If no, describe action taken
12	Have all excavations been demarcated with barrier tape (minimum requirement) or fencing if the excavation is deeper than 2m?			
13	If a trench is more than 2m deep, is there a form of protection, such as: <ul style="list-style-type: none"> <input type="checkbox"/> Sloping or benching <input type="checkbox"/> Trench box or shield <input type="checkbox"/> Shoring 			
14	Is any stockpiling taking place today? If so, ensure the stockpile is placed in an area approved by the Site Foreman and that the height does not exceed 2m and that the slopes are not steep. Is the area demarcated with barrier tape?			
15	Are all storage areas neat and tidy with no machinery, vehicles, poles, materials or nails sticking out which may cause an injury or cause someone to trip up? Have the storage areas been demarcated with barrier tape?			
16	Is the construction site in general safe and neat with no waste lying around?			

Category 3: Solid waste management				
	Question	Yes	No	If no, describe action taken
17	Are there sufficient covered waste containers in place on the construction site and in the Contractor's camp in which to store waste material?			
18	Is waste (including construction waste) being disposed of in a designated disposal area and secured to prevent soil contamination (eg plastic lining underneath the waste pile) or covered to prevent it being blown off site?			
19	Have you checked to ensure waste is not being burnt or disposed of in pits on the site?			
20	Are there any signs of accidental/negligent spills of bitumen, fuel, oil, cement, paint etc visible on the site? If so, ensure spillages are cleared and the waste is containerised for subsequent disposal. Such waste should be treated as hazardous and be appropriately sealed prior to disposal.			
21	Is waste being disposed of off-site today and is it being sent to an approved site? Note the name of the site and keep a record of approximate waste volumes or bags taken for disposal. Waste may be separated for later recycling if this is taking place at the disposal site.			
Category 4: Water management				
	Question	Yes	No	If no, describe action taken
22	Are all water taps and points functioning properly and has a paved surface been provided beneath the tap/water point to prevent erosion and channel water to a catch pit?			
23	Is cement mixing taking place within a bunded area, where excess water drains to a lined pit? Are cement mixing trays being used in confined areas?			
24	Are there any flooded areas at the site? If so, have stormwater systems been installed to manage the water drains? If groundwater is encountered in an excavation or pit, ensure the Site Foreman, RE and			

	Environmental Consultant in the Consulting team are consulted about remedial action.			
Category 5: Social aspects				
	Question	Yes	No	If no, describe action taken
25	Have community representatives been consulted about any concerns related to the construction?			
26	Are HIV/AIDS and other health posters/leaflets being displayed at the work site and have sufficient condoms (male and female) been made available? Does any new material need to be ordered?			
27	Is the general hygiene and waste management at the Contractor's camp acceptable?			
28	Is all potable water and wastewater systems working properly on the construction site and in the Contractor's camp?			
29	Have any records been kept of accidents, work related illnesses or injuries that may have occurred today?			
Category 6: Other (e.g. access roads, borrow pits, dust and noise pollution)				
	Question	Yes	No	If no, describe action taken
30	Are any construction/delivery vehicles using the access roads to the construction site or the borrow pits today? If yes, ensure no impacts have occurred at these locations as a result.			
31	Are construction activities causing any dust pollution? If so, ensure mitigation measures are implemented as per the EMP.			
32	Is construction or Contractor's camp activities causing any noise pollution? If so, ensure mitigation measures are implemented as per the EMP.			
33	Did any training (including for HIV/AIDS) or "toolbox talks" take place today? If so, has a record of attendance and the training provided been kept?			
34	Are there any other environmental aspects not mentioned above that should be mentioned for the record – eg tree/vegetation removal, rehabilitation			

	etc?			
35	Are all records pertaining to environmental management updated and on file?			

Notes in Respect of Category 1

- Ensure all excavations are secure by being sealed off with barrier tape. Should access to the excavation be required by staff, or for vehicles, machinery, building supplies or equipment, then the barrier tape should be erected nearby to prevent access to the wider construction area where the excavation is located. If the excavation is deeper than 1.5m, then consideration should be given to installing fencing or a more secure and permanent barrier to prevent access.
- All materials, machinery and equipment should also be stored in secure areas, which as a minimum have been sealed off with barrier tape. Hazardous substances (such as fuel, cement, paints etc) should be stored in structures which can be either locked or to which general access can be prevented. Adequate safety signage should be in place (and on notice-boards) to warn about use of hazardous substances or equipment.
- No poles, planks or building/waste materials should be left outside of secure/safe storage areas unless in use. Such materials should not be placed where they can be tripped over or stacked such that they could jab passers-by. Sharp ends and nails should not be protruding. Stockpiles should not exceed 2m in height.
- Vehicles and machinery should be inspected daily to check they are not spilling any fuel or oils. Where leaks are detected, they should either be sealed or drip trays placed under the point where leaks are occurring.
- At the end of the working day, the construction site should be inspected to ensure all the above mentioned matters are addressed.
- Any observations made where non-compliance with the above matters is noted should be recorded in the comments area of the checklist and the measures taken to address the problem recorded.

Notes in Respect of Category 2

- Ensure all labourers and staff are wearing the required Personal Protective Equipment (PPE). The minimum requirement is a hard hat and safety shoes. Safety glasses, visors, dust masks and gloves should be worn for activities such as welding and grinding. Scaffolding should be in place where labourers are working at a height of greater than 2m. Should gloves or a hard hat be difficult to wear for more intricate jobs (eg painting above head height), then they should still be kept at hand for use when such a task is complete. A standard overall should be worn by all employees for easy identification. Site Foremen and Team Leaders should set an example with the wearing of PPE.
- All sub-contractors should be inducted and trained regarding the EMP and they should also wear PPE.
- All visitors to the construction site should sign-in in a register, be issued with PPE and be inducted on safety matters. A record of such activity should be kept.
- No open fires should be allowed except where this is permitted for cooking and warmth purposes. Firewood should not be sourced from the environment next to the construction site.
- Ensure any fire-fighting extinguishers and first aid kits are accessible and fully operational. Emergency services contact numbers (police, ambulance, fire brigade etc) should be on hand.
- Any observations made where non-compliance with the above matters is noted should be recorded in the comments area of the checklist and the measures taken to address the problem recorded.

Notes in Respect of Category 3

- Adequate waste containers should be placed on site to prevent littering. The construction sites should be regularly checked to ensure waste has not been left to blow around the site. Waste containers should also

be capable of being closed or sealed off to prevent waste from being blown around.

- If waste can be recycled or reused in the region, then waste on site can be separated into different containers to assist in this regard. At some waste disposal sites, recyclers may be present who retrieve certain wastes for reuse. If this is noted, then separation of waste on the construction site may be warranted.
- When waste is taken to a landfill site for final disposal, if the site does not issue a record of the waste disposed, then keep a record at the construction site of the amount/volume of waste taken to the disposal site.
- No waste should be burned on site or in the waste containers, except in the case of paper and wood which can be safely burnt for fires used for cooking or warmth.
- Any spills of fuel, paint or other potentially hazardous substances should be cleaned up immediately and the waste containerised. This waste should ideally be taken to a hazardous waste site if one is available; alternatively, it should be adequately sealed for disposal at a general waste disposal site. Maintenance and washing of vehicles and equipment should take place on a hard impermeable (and preferably bunded) surface.
- Any observations made where non-compliance with the above matters is noted should be recorded in the comments area of the checklist and the measures taken to address the problem recorded.

Notes in Respect of Category 4

- Potable water should be seen as a scarce resource and not wasted. Taps should not be left open. Leaking taps should be repaired. Water should not be allowed to run away from the ground beneath the tap and erode the soil. A hard surface should be installed beneath taps and any flow of water from the area beneath the tap should be safely channelled to plants or to an area where it does not present a hazard.
- Stormwater needs to be managed during the wet season. It should not be allowed to drain into excavations, nor should it be allowed to flood areas where materials and equipment are stored. A plan should be in place to manage stormwater and this must be approved by the RE and the environmental specialists in the Consulting Team.
- Should groundwater be intercepted during excavation work or during construction activities in the wet season, the Site Foreman and RE should be informed and a plan to protect the groundwater table must be approved by the RE and the environmental specialists in the Consulting Team. Any water pumped out from excavations or construction areas must be safely disposed of with the approval of the Site Foreman and RE.
- All wastewater from construction activities and the Contractor's camp must be channelled to lined pits. This includes wastewater from vehicle wash-down and maintenance areas, from areas used to wash tools and brushes used in concrete mixing and painting and from showers and cooking areas.
- Toilets and sanitation facilities should be checked daily for health reasons and records kept of when such facilities are emptied or replaced. Soap, toilet paper and other cleansing materials should be kept in stock.
- Any observations made where non-compliance with the above matters is noted should be recorded in the comments area of the checklist and the measures taken to address the problem recorded.

Notes in Respect of Category 5

- Records should be kept of all complaints received from members of the public or local community. Key stakeholders such as headmasters of schools and community representatives should be consulted on a regular (preferably daily) basis to confirm there are no problems as a result of construction activities. The nature of any complaints should be noted together with the action taken to address the problem, including action to prevent a recurrence of the problem.

- Any observations where local community members' (or schoolchildren at school construction sites) behaviour interferes with construction staff and construction activities, or where construction staff behaviour affects community members/schoolchildren, should be noted and brought to the attention of the Site Foreman. Local livestock and wild animals should be left undisturbed.
- A supply of male and female condoms should be kept on site and records kept of when they are issued or supplies are replaced.
- Ensure posters, pamphlets and information about HIV/AIDS, STDs, TB and general health are readily available on site and placed on notice-boards.
- Records should also be kept of the number of women employed on site and any incidents where they feel they are being discriminated against in terms of access to facilities etc.
- Any observations made where non-compliance with the above matters is noted should be recorded in the comments area of the checklist and the measures taken to address the problem recorded.

Notes in Respect of Category 6

- Access roads should not be allowed to become seriously damaged or unusable as a result of construction activities.
- Borrow pits (sand mining) and the access roads to them should be restored and left safe after use.
- Any disturbances resulting in excessive dust or noise generated as a result of construction activities should be noted and mitigation measures implemented as per the EMP.
- Ensure sensitive areas (eg watercourses, boreholes, oshanas, graveyards, neighbouring land uses, mature trees and areas of undisturbed vegetation) are taped off from the construction areas and educate the staff that such areas are off-limits.
- Ensure all safety, health and environmental awareness/training records are up to date.
- Any observations made where non-compliance with the above matters is noted should be recorded in the comments area of the checklist and the measures taken to address the problem recorded.

NB. Note that completion of the checklist each day does not absolve the on-site safety, health and environmental representative(s) from ensuring all conditions in the EMP/PHSAPs are adhered to. If in doubt about actions to take, consult the full EMP/PHSAP documents which should be kept on site.

APPENDIX B

Borrow Pit Rehabilitation Checklist

Date: _____

Borrow Pit Name and Number: _____

Location (road-km / GPS coordinates): _____

The above borrow pit shall only be handed over once all of the listed criteria have been met by the contractor.

Item No.	Description	Comments	Complies
			Yes / No
1.	The floor is level and no man made topographical high or low points are present in the borrow pit		
2.	The site in and around the pit is clear of any illegal dumping of foreign material, spoils and construction waste		
3.	Gradients of the pit slopes are less than 18 degrees (1:3) and are finished perpendicular to the slopes to prevent water erosion		
4.	The slopes are covered with overburden/top soil, if available, with a thickness of not more than 300 mm		
5.	Available dead vegetation is placed on the slopes of the borrow pits		
6.	The berm of excess soil outside the pit is not higher than 1.0 m, sloped 1:3 and min. 3.0 m away from the edge of the pit and min. 9.0 m away from any structure		
7.	There are no walls or steps present in or around the borrow pit, if so, then the pit has been fenced off according to spec.		
8.	All alien vegetation has been removed from the floor, the slopes and berms of the pit		

Land Owner: _____
 (Name) (Signature)

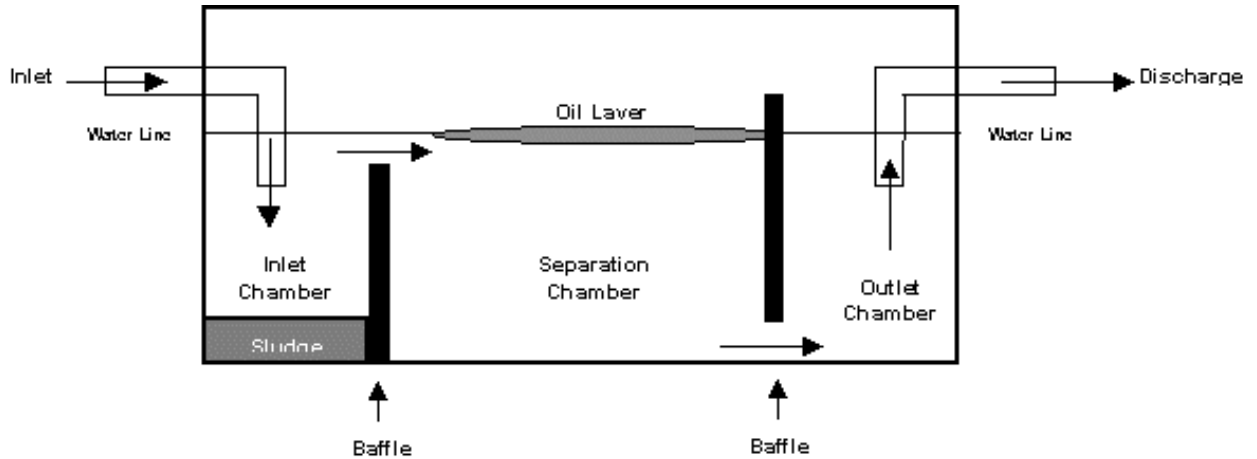
Contractor: _____
 (Name) (Signature)

Consultant: _____
 (Name) (Signature)

Client: _____ (Name)
 (Signature)

APPENDIX C

Oil – Water separator



This is an example of a very simple but effective silt / oil water separator that should be constructed at the wash bays of all the construction sites. It should be noted that REGULAR cleaning is required to ensure effectiveness. Sludge removal and oil skimming is two maintenance actions required to ensure effectiveness.

APPENDIX D

Curriculum Vitae of the Compiler