Environmental Assessment Report for Resource extraction from a Borrow Pit at Divundu Town. The material required for the light rehabilitation of TR8/4 between Rundu and Divundu – Kavango East Region

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ACRONYMS / ABBREVIATIONS

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

1. INTRODUCTION

Enviro Management Consultants Namibia (EMCN) is appointed by the Roads Authority to undertake the Environmental Assessment relating to the proposed project – Environmental Assessment Report for Resource extraction from a Borrow Pit at Divundu Village Council. The material required for the light rehabilitation of TR8/4 between Rundu and Divundu – Kavango East Region.

The site is relatively small (less than one hectare) with location coordinates of: Latitude: 18° 5′ 44.948″ S, Longitude: 21° 31′ 28.17″ E. The light rehabilitation of TR8/4 between Rundu and Divundu is currently underway, but suitable materials for this project is scares.

This old Borrow Pit (BP) was utilised previously and contain suitable material for the rehabilitation activities. The plan is to use the current materials available and erect a small crusher at the BP. The stones will be crushed and stockpiled close to the BP and the material used for the ongoing rehabilitation project.

Figure 1: Google Earth image of the proposed BP.

2. DETAILS OF THE APPLICANT AND CONSULTANT

2.1 Details of the Applicant

Applicant	Roads Authority of Namibia
Contact Person	Mr. Kennedy Chigumira Regional Engineering Manager Kavango Region
Contact Numbers Email:	+264 81 169 4699 +264 (065) 231 560 chigumirak@ra.org.na

2.2 Details of the Environmental Consultants

The environmental project team from EMCN is led by Mr. Rian du Toit, an Environmental Assessment Practitioner with more than 21 years of working experience in the field of Environmental Management. Table 1 highlights the experience and qualifications of the environmental team.

Table 1: Capability Statement for the Environmental Project Team

Name	Role in the Project	Qualifications and Experience
Rian du Toit	Environmental Assessment Practitioner and Project Manager	Master's degree in the Environmental and Social fields. Mr. du Toit has more than 21 years' experience in the field of environmental management, mostly related to roads, services, transmission lines and mining right applications.

3. BORROW PIT ACTIVITIES DESCRIPTION

The BP is relatively small but might be increase in size during the materials extraction. Suitable materials are needed for the construction of the selected layer, subbase, shoulder, and base course. Fill material is also required to ensure a vertical alignment appropriate for the chosen design speed.

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

The oversized rocks are put through a crusher and then sorted by means of various screen sizes present in the crusher (like the picture above). The crushed material is then stored in stockpiles ready for collection, hauled and used in the pavement layers.

There will be a small camp erected at the BP with toilet facilities, some accommodation facilities, storage areas and maintenance areas.

3.1 Residues and Emissions During Construction

Due to the type of activities that are associated with the extraction of materials it is very unlikely that any toxic materials will be present on site. However, dust and noise might be a significant negative impact associated with the extraction, crushing, and loading of materials (noise and dust).

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

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

3.2 Construction Water Requirements

Contractors must obtain the consent of relevant landowners prior to utilizing a water source and Clause B1219 of the Project Specifications (COLTO)[1] contains requirements and standards related to the quality of water used for construction purposes. A water extraction license is required according to the Water Resources Management Act N0.11 of 2013. Water will be used for domestic and dust suppression purposes.

3.3 Alternatives Identified

There are only two alternatives to this project due to the limited suitable materials in this area. As discussed below, there is a thin intrusion of rock at Divundu. Surrounding areas are geologically characterised by mostly sandy materials not suitable for road layer works. Therefore, there are limited sites suitable for the obtainment and processing of geological material. This existing BP area was identified and chosen due to the already disturbed environment and suitable materials.

The other alternative is the "No-Go" option where the Roads Authority shall not use the present BP material and buy suitable road construction material from a commercial source. However, this is very expensive and might jeopardise the feasibility of the road rehabilitation efforts.

4. ASSUMPTIONS AND LIMITATIONS

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

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

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

5. POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

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

THE NAMIBIAN LEGISLATIVE FRAMEWORK

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

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

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

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

Activity No.	Activity Description
3.3	Mining and Quarrying Activities – Resource extraction, manipulation, conservation and related activities.

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

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

Statute	Provisions	Project Implications
Forest Act 12 of 2001	Provision for the protection of natural vegetation. No regulations promulgated yet. Section 22(1): It is unlawful for any person to "*cut, destroy or remove:* • any living tree, bush or shrub growing within 100 meters from a river, stream or watercourse on land that is not part of a surveyed erf or a local authority area without a license. • Vegetation which is on a sand dune or drifting sand or on a	• Permits should be obtained from Department of Forestry for the removal of protected trees.

Statute	Provisions	Project Implications
	gully unless the cutting, destruction or removal is done for the purpose of stabilizing the sand or gully.	
National Heritage Act 27 of 2004	Heritage resources to be conserved in development.	All archaeological sites to be identified and protected.
Nature Conservation Ordinance 4 of 1975	Requires a permit for picking (the definition of "picking" includes damage or destroy) protected plants without a permit.	In case there is an intention to remove protected species, then permits will be required.
Preservation of Trees and Forests under the Forest Act, 2001.	Protection to tree species.	The Contractor will require a permit to remove any protected trees.
Soil Conservation Act 76 of 1969	Prevention and combating of soil erosion; conservation, improvement and manner of use of soil and vegetation, and protection of water sources. The Minister may direct owners or land occupiers in respect of *inter alia* water courses. No Regulations exist to this effect.	Removals of vegetation cover to be avoided and minimized at all costs. Soil pollution to be avoided.
Water Resources Management Act 11 of 2013	Section 44 states that no person may abstract or use water, except in accordance with a license issued under this Act. Abstraction of water including open waters, aquifer, brackish or marine water. Section 566 states that any drilling to be conducted or enlargement of an existing borehole can only be conducted under a permit issued under the Act. Section 66 states that a person may not discharge any effluent directly or indirectly to any water resource on or under the ground or construct any effluent treatment facility or disposal site unless in compliance with a permit issued under Section 70 of the Act. Where "effluent" means any liquid discharge as a result of domestic, commercial, industrial or agricultural activities.	Obligation not to pollute surface water bodies. The following permits are required in terms of the Water Act: • water abstraction license that will form part of the contract obligations.
Public Health Act 36 of 1919	Provides for the prevention of pollution of public water supplies.	A general obligation for the Contractor not to pollute the water bodies in the area.
Government Notice No 121 of 1969 as amended as well as Government Notice No. 156 of 1 Aug 1997	This is the general health regulations applicable to this project.	The Contractor will enforce the conditions required to ensure the health and safety of the workers.

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

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

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

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

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

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

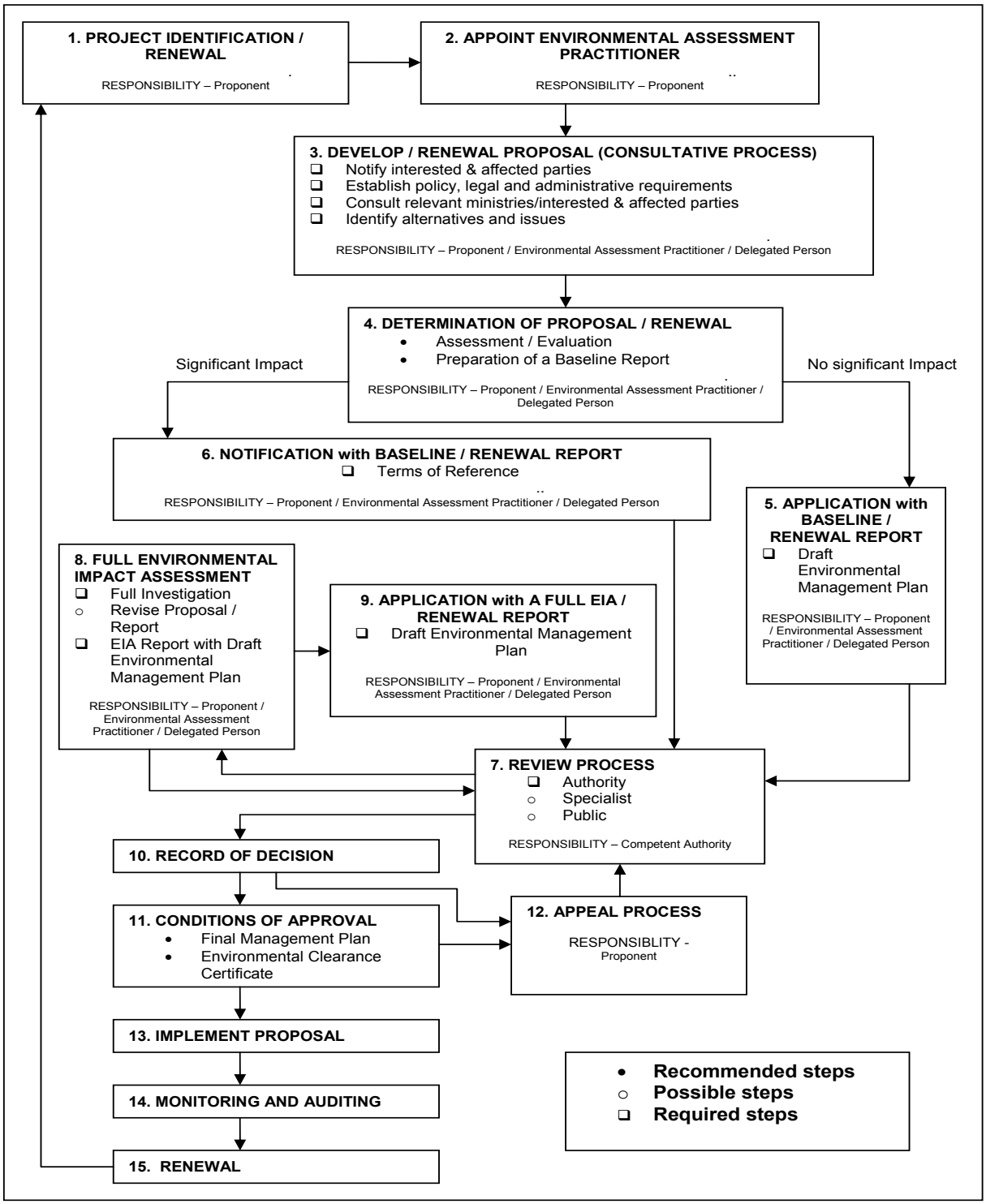
(c) any road provided for this purpose shall be ripped up in such a way that it cannot be washed away should the owner, lessee or occupier so desire.

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

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

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

Figure 2: EIA Process



6. DESCRIPTION OF BASELINE CONDITIONS

This section describes the bio-physical aspects of the study area to allow for identification of elements of environmental sensitivity and to provide the context for the assessment of significance of impacts related to the proposed project. Some of the secondary data used in this report is obtained from the area around the town of Rundu, but these data is also applicable to the study area.

6.1 Climate

The available data are used to describe the climate averages of Rundu Town but is also applicable to Divundu.

6.1.1 Rainfall and Temperature

Rundu is influenced by the local steppe climate. This climate is considered to be BSh according to the Köppen-Geiger climate classification. The average annual temperature is 22.9 °C with about 647 mm of precipitation annually.

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	24 °C (75.3) °F	23.6 °C (74.5) °F	23.3 °C (73.9) °F	22.6 °C (72.6) °F	20.7 °C (69.3) °F	18 °C (64.4) °F	17.6 °C (63.7) °F	21.1 °C (70) °F	25.3 °C (77.5) °F	27.8 °C (82) °F	26.4 °C (79.6) °F	24.8 °C (76.7) °F
Min. Temperature °C (°F)	19.6 °C (67.3) °F	19.1 °C (66.5) °F	18.7 °C (65.7) °F	16.9 °C (62.5) °F	13.9 °C (57.1) °F	11 °C (51.9) °F	10.4 °C (50.7) °F	13.2 °C (55.7) °F	17.2 °C (62.9) °F	20.5 °C (68.9) °F	20.4 °C (68.7) °F	19.9 °C (67.8) °F
Precipitation / Rainfall mm (in)	170 (6.7)	132 (5.2)	110 (4.3)	23 (0.9)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	15 (0.6)	67 (2.6)	129 (5.1)
Humidity(%)	67%	69%	67%	53%	38%	37%	33%	25%	20%	25%	43%	61%
Rainy days (d)	14	12	11	4	0	0	0	0	0	3	9	12
avg. Sun hours (hours)	9.3	9.1	8.7	9.7	10.1	9.9	10.0	10.4	10.8	11.2	11.2	10.3

Figure 3: Average weather of Rundu

The difference in precipitation between the driest month and the wettest month is 170 mm. The average temperatures vary during the year by 10.2 °C. The month with the highest relative humidity is February (69.01 %).

The month with the lowest relative humidity is September (19.97 %). The month with the highest number of rainy days is January (18.23 days). The month with the lowest number of rainy days is June (0.00 days)[2].

[2] https://en.climate-data.org/africa/namibia/kavango-east-region/rundu-26555/

6.2 Air quality

6.2.1 Existing Sources of Air Pollution

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

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

6.2.2 Sensitive Receptors

The proposed project is situated north west from the town of Divundu which have limited receptors, but dust reduction is a priority during the BP activities. There are some households on the eastern side of the current BP.

6.2.3 Wind

The wind rose for Rundu shows how many hours per year the wind blows from the indicated direction. Example ENE: Wind is blowing from East-North-East.

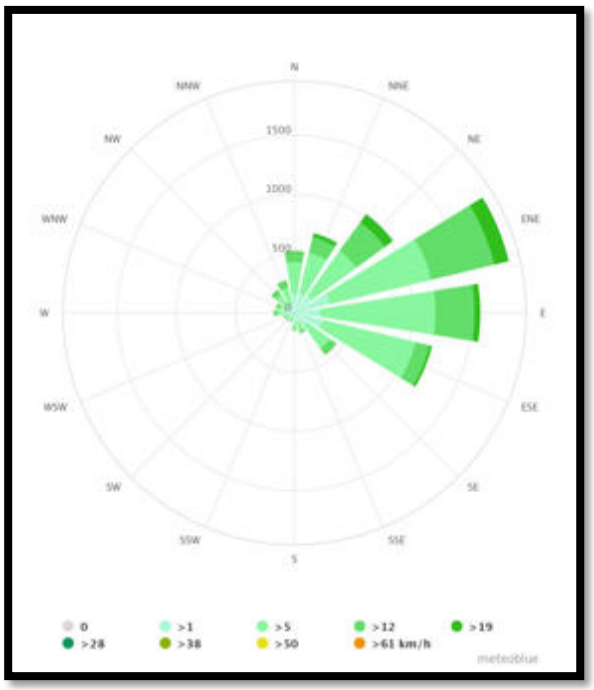


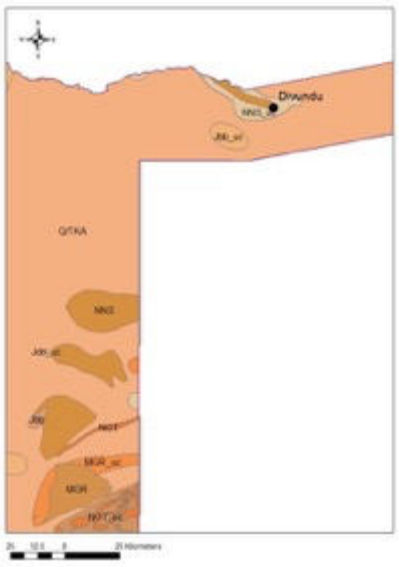
Figure 4: Average Wind Speed and direction in Divundu

6.3 Topography

The BP is situated on the Central Plateau of Namibia with altitudes varying from 1000m to 1100m above sea-level. The general topography of the area is characterised by plains with a downward gradient to the north. To the south there is a gradual increase of height stretching from the Okavango River to the central parts of the mainland.

This topographical characteristic also contributes to the forming and existence of the Okavango Delta situated to the south - eastern part of the proposed projects where surface water is channelled to contribute to the Delta. These topographic characteristics do not pose any limitations on the proposed project.

6.4 Geology



The area around the BP is situated in the Kalahari Sequence (Q/TKA) which covers large areas of the north-western, north, northeast, southeast and southern part of Namibia. Part of this sequence is the Basalts found in the Kavango and the Zambezi Strip.

However, this is the case, the area on which the BP is found is characterised by the Nosib Group of the Damara belt which are volcanic and clastic sediments, reaches up to 1200 m in thickness. (Miller 1992). This intrusion is found within Divundu and stretches a thin corridor towards the northwest.

Figure 5: Geology of the project area

6.5 Vegetation and Soils

The soil category for the study area is **Arenosols**. This type is formed from windblown sand and usually extends to a depth of at least one meter, with sand generally making up more than 70% of the soil. The rest of the soils usually consist of particles of clay and silt.

The sandy texture allows water to drain through the soil rapidly, leaving very little moisture at depths to which most plant roots can reach. Few nutrients are retained in the porous sand. The loose structure of sand means that there is little run-off and water erosion, although it makes the soil susceptible to wind erosion.

Arenosols are by far the biggest soil unit in Namibia, covering much of eastern and north-eastern parts of the country (Mendelsohn 2002).

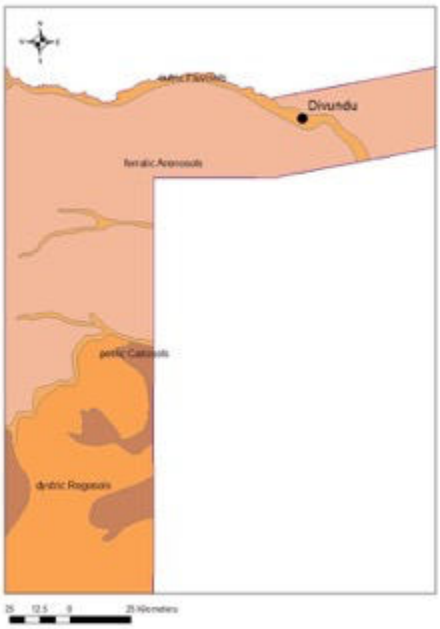


Figure 6: Soils of the project area

Lower lying areas are usually (though not exclusively) preferred for cultivation – presumably due to higher soil moisture, and higher clay and organic content. In the occasional drainage lines, the soils are classified as **Eutric Fluvisols**. These have higher clay and organic content. However, in some places the soil becomes waterlogged, probably due to presence of calcrete and impermeable clays, which inhibit penetration of water to deeper levels.

The BP is situated in the North-Eastern Kalahari Woodland biome. This Biome is characterised by broadleaved Tree-and-shrub Savanna type vegetation which is known to be dominated by several species of tall trees, *Guibourtia coleosperma* (Ushivi), *Acacia fleckii* (Sand-veld Acacia), *Acacia tortillas* (Umbrella-thorn), *Burkea afrikana* (Burkea), and the *Baikiaea plurijuga* (Zambezi Teak), that can form moderately thick populations in some places.

Ficus thonningii (Wild Fig Tree)

Various fruit baring trees exist in the Kavango area. Some of them like the *Strychnos* spinosa (Spiny Monkey Orange) are of great economic value because these fruits are sold.

Other fruit bearing trees like the *Sclerocarya birrea* (Maroela Tree), *Berchemia discolour* (Bird Plum), and *Ficus thonningii* (Wild Fig Tree) are also present in the area (Curtis 2005).

Woody species characteristic of the Kalahari sand is *Burkea africana*, *Schinziophyton rautanenii, Combretum collinum*, and *Terminalea sericea*. Grasses such as *Schmidtia kalahariensis*, *Wilommia sarmentosa*, *Sporobolus spicatus*, *Aristida* and *Eragrostus* species dominate the grass cover. The grazing resources are of little value in this area (Mendelsohn 2002).

Aloe littoralis (Windhoek Aloe) were noted on the rocky outcrops to the north of the existing borrow pit. This is of concern due to the conservation status of this plant. Special mitigation measures shall apply to this species.

6.6 Land Use

The old BP is situated on land that belong to the Divundu Village Council. This land is undeveloped with some rural homesteads found to the northeast of the property. The BP area is un-utilised due to its rocky outcrops. Although, some cattle were noted during the site visit, the area is rocky and covered with bushes, thus could not be regarded as grazing land. The town of Divundu is situated approximately 2.5km to the south-east of the BP.

6.7 Surface and Groundwater

The most important drainage system in the Kavango Region is the Okavango River situated in the northern border of Namibia. Other smaller drainage rivers occur in the Kavango Region and are dominated by the Omatako River, and its estuaries, flowing in a Northern direction towards the Okavango River. The combined Okavango and Cuito Rivers end their journeys inland in the Okavango Delta in Botswana.

Water flows in the perennial rivers vary enormously from year to year, generally response to the amounts of rain falling in their catchment areas. The general surface water characteristics of the area applicable to this project is dominated by very high surface water infiltration with little surface water run-off.

Geo-hydrology in the area is characteristic of shallow aquifer levels (between 10-30 m below surface) water which is sustained during the year. The quality of the water is of high standards and can be utilized for both cattle and human consumption.

The proposed routes are situated on some of the most productive porous aquifers found in Namibia.

The water quality over much of the region is extremely good. The TDS (Total Dissolved Solids) is a good measure to determine the quality of the water and for classification: a TDS of over 5000 mg per litre is not even suitable for livestock and less than 1000 mg/l indicates good quality water. The proposed areas are mostly situated in areas less than 1000 mg/l.

6.8 Fauna

According to Mendelsohn the area around Divundu host various types of fauna species but are not endemic. Amongst the abundant wildlife found in the surrounding areas consists of elephants, buffalo, zebra, giraffe, and hydrophilic antelopes like Rietbok and Letchwe, not to forget crocodiles and hippopotamus. These fauna are typically noticed on the eastern side of Divundu and not at the BP area.

6.9 Archaeological and Anthropological Resources

The heritage of Namibia is protected in terms of the National Heritage Act of 2004. This legislation obliges a developer to identify any heritage sites before project implementation. In Namibia, the heritage aspects are normally covered in the EA of the project.

The BP area has been heavily impacted on during the last few decades. The only significance with regards to archaeological material can be socio-orientated with regards to graveyards, sacred or ritual trees and places. During the site visit, none of these were noted, but the contractor shall be informed about the possibility of any archaeological or anthropological find to be reported to the Resident Engineer for any required actions. The area of the BP is also relatively small (less than 1 Ha).

6.10 Noise

Even though tourism plays an important economic role in this area it is anticipated that noise will not be an important aspect to consider due to the remoteness of the proposed BP. The movement of the hauling trucks will contribute to increased noise levels in the adjacent area of the BP operations and adjacent to haul roads.

6.11 Visual Impacts

The existing BP and surrounding area have not been rehabilitated and is therefore visually degraded. The proposed utilisation of the current material will result in some additional temporary stockpiles further reducing the visual aesthetics of the BP area.

6.12 Socio-economic background

The Kavango East is an outcome of the split of Kavango Region into two Regions known as Kavango East and Kavango West. The basic statistics in Kavango East with reference to the NSA Report for the Region of Kavango East indicate the Region has six constituencies (Rundu urban, Rundu Rural, Mashare, Mukwe, Ndiyona and Ndonga Linena), in which Rundu Urban is main development Center, with settlement (Divundu Settlement and Ndiyona settlement).

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

The four roads render services to the community by allowing people to have access to modern means of transport which improves their livelihood significantly. Improved access to markets,

health care services and educational facilities benefit the society as a whole as it improves the potential for economic development. Roads also contribute to a better administration of the territory.

Social development in the project area is essentially marked by the progress made in the sectors of education and health. Decentralisation to the regions of some of the administrative functions, the establishment of magistrate's courts, police stations and other facilities contribute to the general development of the area. Church missions are well established in northern Namibia and play a major role in the social development of a community.

The Kavango East Region is characterised by little or poor access to fundamental social institutions as mentioned above. This proposed project will facilitate in expanding the transport network therefore improving mobility. This is especially true in the rural areas due to the fact that over 70% of the people in the Kavango East Region live in the rural areas.

Table 3: Population - Kavango East

Total Population	2011	223 352	136 823	86 529
Total Female	2011	118 591	72 936	45 655
Total Male	2011	104 761	63 887	40 874

The distribution of people across Namibia is very unevenly, with the biggest population concentration occurring in the northern parts. It is estimated that the Kavango East region has a population of 136 823 out of a total population of about 2.5 million people in Namibia. This means that the Kavango East region houses just more than 5% of the total population of Namibia (Population and Housing Census, 2011). It is estimated that 28% of the population in this region live in urban areas and the other 72% are rural. According to the Census of 2011, 53.7% of the people in the region are unemployed.

Private sectors provide jobs for the largest proportion of employees (39.8%) in Namibia, followed by subsistence/communal farmers (without paid employees) (21.3%) and government (16.7%). In contrast, the vast majority of workers in the Kavango East Region and all its Constituencies, except Rundu Urban, are subsistence farmers without employees. These farmers mostly produce food for their own survival with little surplus left to sell and earn a significant income. In addition, as these farmers have no paid employees, there is no benefit of job-creation to address the high levels of unemployment in the region.

Crop growing dominates the agricultural sector with livestock farming in second place. There are also some poultry farming activities that contribute to the household incomes[3].

[3] https://kavangoeastrc.gov.na/

7. PUBLIC PARTICIPATION PROCESS

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

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

The proposed BP area is exclusively situated on land owned by the Divundu Village Council; therefore this Council was consulted. The proposed project was advertised twice in various newspapers (as indicated below).

The project was advertised in the Market Watch section of the Daily Sun, Republikein and Allgemeine Zeitung on two separate occasions:

1st August 2023 and,
15th August 2023.

Please find attached the Advertisement that was placed in the various newspapers, the list of I&AP's that were identified and consulted during the public consultation process as well as the Issues and concerns register.

A Background Information Document (BID) was compiled and was available to any persons that registered as an Interested and Affected Party before the closure of the registration period on the 25th of August 2023.

7.1 Proof of Placement of Notices

Market Watch

Bank Windhoek reaches out to northern SMEs

Information session

The Ondangwa session saw 26 entrepreneurs, while the Oshakati session hosted 42 entrepreneurs.

STAFF REPORTER

NIPDB

Our ambitions are to present these sessions across all 14 regions, where possible, to ensure that access to information is available to all.

Jeneviev Swartz, Manager of emerging SME's: Bank Windhoek

Absa: Bad credit card debt surges 70%

KARL GERNETZKY

NOTICE OF AN ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Market Watch

Sun

3

>> COMPANY NEWS IN BRIEF

NETCARE CEO TO TAKE EARLY RETIREMENT

Netcare, the owner of South Africa's biggest network of private hospitals, said on Friday long-serving CEO Richard Friedland would be taking early retirement at the end of September 2024.

Friedland, aged 66 as of 2023, was appointed CEO in September 2005 and has been with the group for three decades, in his role as CEO, he oversaw the expansion of the group while guiding it through "unprecedented times," notably the Covid-19 pandemic, the company said on Friday.

Netcare raised a cool R20 billion on the JSE. And a network that included 89 acute hospitals with almost 10 000 beds in 2022, while employing more than 18 000 staff. It is a specialist 13-hospital health facilities and 42 primary healthcare facilities.

During his tenure, Friedland oversaw the building of five new flagship hospitals, while also founding several key joint business units. This includes Netcare 911 – which provides emergency services – a size pathology offering, Netcare Diagnostics, as well as Netcare Pace, an insurance offering.

"Under his leadership, the group has undertaken the most ambitious healthcare infrastructure project in the continent, which is transforming Netcare and providing a long-term sustainable competitive advantage," Netcare said.

His commitment to sustainability has also resulted in numerous local and international awards, the group said, while the "foresight of this strategy which was implemented 10 years ago in 2013, has also played a pivotal role in reducing Netcare's exposure to the impacts of the instability of the national electricity grid."

– Reuters

EDKOM HANDS CONTROL BACK TO SKUMBULEKE

Eskom has returned control of load shedding back to the City of Mbombela (CoM) less than a week after it took over after the municipality failed to implement power cuts.

Eskom said on Friday that the CoM consented to implementing load shedding, and that it had "put controls in place to address the challenges" that prevented a hour during the planned power cuts.

"Eskom will continue to monitor the CoM and other municipalities to ensure that they implement load shedding accordingly. Eskom will take over the load-shedding of any municipality that fails to comply for whatever reason, once after it has been engaged on the matter, as was the case with Thembisile," Eskom said.

"The power utility is obliged to take the necessary precautions to protect the integrity and stability of the grid."

Eskom announced last week that it had taken control. It had previously taken over some of the role and left the municipality to load shed substations that had "critical loads". It later handed back all load shedding after the municipality asked to assume responsibility again.

The CoM, however, failed to implement the cuts, which necessitated Eskom stepping in again.

– Fin24

NERSA APPROVES NTC'S LICENCE

The process of unbundling Eskom is one step closer to realisation after SA's energy regulator approved the awarding licence for an independent transmission company.

On Friday, the National Energy Regulator of SA (Nersa) said it approved a licence for the National Transmission Company of South Africa (NTC) to operate the national power grid. This was after a public hearing in April, where all the processes that made out preconditions supported the application for the licence.

The NTC will run the Transmission Network Service Provider, the Transmission System Planner, the office of the Grid Code Secretariat, and the System Operator. The System Operator has an overview of the systems at every unit at every power station in the country and manages the entire system's power supply and demand from a centralised control centre. The System Operator determines which stage of load shedding is required to ensure grid stability.

"This is a milestone decision by the energy regulator and will immensely contribute in Eskom's unbundling trajectory," Nersa chair Thandeker Bukula said in a statement.

– Fin24

COURT RULES FOR BANKS IN SERICHILO MATTER

An appeals court has upheld the decision taken by three banks to stop offering their services to companies in Iqbal Survé's Sekunjalo group.

The Competition Appeal Court of SA found last week that the Competition Tribunal was wrong to order Mercantile Bank, Standard Bank and Access Bank to either reopen or not close Sekunjalo's accounts.

The ruling does not constitute the final word on whether Sekunjalo can retain banking services. However, as the three-member hearing group still has cases to be heard at the Gauteng and High Courts.

The three banks decided their appeal after the Tribunal found in September 2022 "there was evidence that banks had imposed or participated in agreements where they stopped offering banking services to firms in the Sekunjalo stable.

Banks started to pull their banking services following the publication of the findings of the Mpati Commission of Inquiry's Report into the Public Investment Corporation (PIC), citing fear of reputational damage.

The report, published in March 2020, found that the PIC's investments in Sekunjalo companies showed a "marked disregard for PIC policy and prudent investing principles".

– Fin24

SA domestic workers face spiralling debt

>> *As sector bleeds jobs*

The job losses indicated by the survey represented a 15% percent increase in the number of domestic workers who lost their means.

MARELISE VAN DER MERWE

"Power cuts also negatively impacted the safety and commutes of domestic workers as they navigate the rolling blackouts."
SweepSouth

Social grant recipients stand in a queue outside a post office, as joblessness takes its toll in Mooiwaterdrift, a suburb of Soweto, South Africa.

Of those who remained, nearly 60% emigrated.

The job losses indicated by the survey represented a 15% percent increase in the number of domestic workers who lost their means, the report said.

South Africa's official statistics show that the unemployment rate overall edged upwards in the first quarter of 2023 – the first rise in two years, following a peak in January 2022. In terms of individual sectors, however, job losses were by far the most dramatic in private households (-45 000) with trade trailing far behind at -24 000, followed by mining at -14 000.

The 2023 Report on Domestic Workers Pay and Work Conditions, released on Sunday, surveyed over 3 000 participants. It found that that the average domestic worker in South Africa – 94% of whom are women – is 37 years old and earns about R3 000 a month from domestic work as her only source of income, while roughly two breadwinners in her family.

Spending

On average, she spends just under R700 more than she earns each month, "in unable to save, has accumulated an amount about R3 000 in shops, friends and loan sharks, among others", the report authors said.

Just 9% of the domestic workers surveyed had savings. "The only way for domestic workers' earnings to increase in the past year, has been for them (42%) to take on more roles as workers to generate more income. But those are the lucky ones," SweepSouth said.

The survey authors called for "urgent contemplation of extended unemployment benefits" saying most domestic workers who lost their jobs did not have UIF either. Just 32% of those registered were able to submit successful claims.

The report painted a grim picture for workers who were unpaid during long periods of lockdown and poor implementation of labour legislation.

Further, it said, power cuts had not only contributed to job cuts, but also a lack of safety.

"Load shedding also had devastating effects," it said. "For the first time in two years, the report also looked at the effects of South Africa's electricity crisis and found that many domestic workers, who had their jobs in the past year, felt that load shedding placed strain on their home environment.

"Power cuts also negatively impacted the safety and commutes of domestic workers as they navigate the rolling blackouts."

– Fin24

7.2 Press Notice

This is the press notice placed in the various newspapers:

NOTICE OF AN ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

Enviro Management Consultants Namibia has been appointed by the Roads Authority to conduct an Environmental Impact Assessment and develop an Environmental and Social Management Plan as required by the Environmental Management Act No 7 (2007) and the associated Environmental Regulations for the following project:

Resource extraction from a Borrow Pit at Divundu Town. The material required for the light rehabilitation of TR8/4 between Rundu and Divundu – Kavango East Region

This environmental assessment process aims at applying for Environmental Clearance from the Ministry of Environment, Forestry and Tourism to obtain gravel material from a borrow pit located at Divundu, for the light rehabilitation of TR8/4 between Rundu and Divundu.

This is an existing borrow pit that will be extended, and material used for the road construction. The Divundu Village Council has been informed about this proposed activity. The exact location of the borrow pit is at Latitude: 18° 5′ 44.948″ S, Longitude: 21° 31′ 28.17″ E.

Take note that all Interested and Affected Parties (I&AP's) are hereby invited to register in terms of the environmental assessment process and to give input, comments, or opinions regarding the resource extraction.

Please forward your inputs before 25th August 2023 to the following:

Enviro Management Consultants Namibia
Contact: Rian du Toit
Fax: 088 626968
Email: enviromc@iway.na

7.3 Table of registered and consulted I&AP's

List of Interested and Affected Parties Consulted					
Name & Surname	Organisation	Position	Tel.	E-mail	Means
Mr. A.N Maghumbo	Office of the Divundu Village Council	Council Member	0811451526	**amaghumbo@divunduvc.com.na**	Personal interview
Mr. N Ipinge	Namibian Environment and Wildlife Society	EIA Tracking and Monitoring in Namibia	0814138822	**ndeliimonachox@gmail.com**	Notice in the Sun newspaper
Mr. L Wakudumo	Roads Authority	Senior Engineer – Materials	081 294 4039	**wakudumol@ra.org.na**	Personal interview
Mr. K Chgumira	Roads Authority	Regional Engineer	081 169 4699	**chigumirak@ra.org.na**	Personal interview
Ms. S Thikusho	Divundu Village Council	Human Resource Practitioner	081 222 0042	**mailto:sthikusho@divunduvc.com.na**	Personal interview /email

The few comments raised by the I&AP's are incorporated into the environmental impact assessment.

8. ENVIRONMENTAL IMPACT ASSESMENT PROCESS

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

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

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

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

- **Earthworks**
  - Excavations and trenches
  - Cut and fill
  - Shaping and trimming

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

8.1 Environmental Impact Assessment Process Methodology

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

- **First**, identifying the potential impacts of projects.

- **Second** selecting those which are likely to be significant and therefore require most attention in the assessment.

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

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

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

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

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

Table 4: Environmental Scoping Checklist

PART 1 OF THE SCOPING CHECKLIST: QUESTIONS ON PROJECT CHARACTERISTICS				
1. Will construction, operation or decommissioning of the Project involve actions that will cause physical changes in the locality (topography, land use, changes in water bodies, etc)?				
No.	**Questions to be considered in the Scoping**	**Yes/No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
1.1	Permanent or temporary change in land use, land cover or topography including increases in intensity of land use?	Yes	The borrow pit operations will temporarily alter the land use, land cover and, for the borrow pits - topography of the area.	Low significance because of possible mitigation measures that can be implemented. Rehabilitation of the BP will improve aesthetic aspect.
1.2	Clearance of existing land, vegetation and buildings?	Yes	Clearing of vegetation for construction operations influencing the vegetation, soils and topography. It is very unlikely that any buildings will be cleared.	Clearing of vegetation is always regarded as significant when it comes to BP operations. However, mitigation measures can reduce the significance of the impact.
1.3	Creation of new land uses?	Yes	BP enlargement will change land use from natural to disturbed.	Might be significant due to some protected flora species.
1.4	Pre-construction investigators eg boreholes, soil testing?	Yes	Materials testing are required to obtain construction materials which will affect the topography and vegetation cover.	The areas of disturbance are very small. Holes are dug to excavate samples and closed after sampling. Low significance.
1.5	Construction works?	Yes	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	The existing BP area will be used which has already been cleared.
1.6	Demolition works?	No		
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 BP activities.	It is anticipated that the impact will be significant due to the excavation of materials.

1.9	Underground works including mining or tunnelling?	No		
1.10	Reclamation works?	No		
1.11	Dredging?	No		
1.12	Coastal structures egg seawalls, piers?	No		
1.13	Offshore structures?	No		
1.14	Production and manufacturing processes?	No		
1.15	Facilities for storage of goods or materials?	Yes	The storage of machines, gravel, crushed stone, sand, cement, bitumen and bulk fuel.	The storage of goods or materials can be mitigated therefore limiting the significance.
1.16	Facilities for treatment or disposal of solid wastes or liquid effluents?	Yes	Sewage effluent from the camp sites need to be treated or disposed.	This might have a significant negative impact on Health / Safety as well as soils and water if not managed effectively.
1.17	Facilities for long term housing of operational workers?	No		
1.18	New road, rail or sea traffic during construction or operation?	Yes	Construction of an access road to the BP and traffic increase due to movement of construction vehicles.	Medium significance due to the popular tourist route.
1.19	New road, rail, air, water borne or other transport infrastructure including new or altered routes and stations, ports, airports etc?	No		
1.20	Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?	No		
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?	No		

1.23	Stream crossings?	No		
1.24	Abstraction or transfers of water from ground or surface waters?	Yes	Water will be extracted for the construction phase of the project.	Water from boreholes or adjacent river will be used and the significance will be medium due to the scarcity of available water.
1.25	Changes in water bodies or the land surface affecting drainage or run-off?	No		
1.26	Transport of personnel or materials for construction, operation or commissioning?	Yes	Surface characteristics.	No significance.
1.27	Long term dismantling or decommissioning or restoration works?	No		
1.28	Ongoing activity during decommissioning which could have an impact on the environment?	No		
1.29	Influx of people to an area is either temporarily or permanently?	No		
1.30	Introduction of alien species?	No		
1.31	Loss of native species or genetic diversity?	No		
1.32	Any other actions?	No		

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

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
2.1	Land especially undeveloped or agricultural land?	Yes	During operation, geological materials will be used for the filling and layer works. Soils will be affected and might therefore impact negatively on the agricultural / communal land.	Materials will permanently be removed. Significance will be low because the current / new material is not used for anything else.

2.2	Water?	Yes	Water is used for domestic and crushing purposes.	The available water will be used for construction. The significance will be medium due to the low volumes available.

3. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
3.1	Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, and water supplies)?	Yes	Hydrocarbons always pose a risk to the environment.	Water and soils are normally affected by spillages of hydrocarbons. The significance might be medium without mitigation measures.
3.2	Will the project result in changes in occurrence of disease or affect disease vectors (eg insect or water borne diseases)?	No		
3.3	Will the project affect the welfare of people eg by changing living conditions?	?	There is always a risk of altered quality with regards to living conditions of the adjacent people and the environment. This is with reference to HIV/AIDS.	The significance of such risks can be mitigated, ensuring low impact significance.
3.4	Are there especially vulnerable groups of people who could be affected by the project eg hospital patients, the elderly?	Yes	There are some rural households to the east of the existing BP. Noise and dust might impact on these residents.	Medium negative significance due to the prevailing wind blowing from the east, therefore mitigating some of the impact.
3.5	Any other causes?	No		

4. Will the Project produce solid wastes during construction or operation or decommissioning?

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
4.1	Spoil, overburden or mine wastes?	Yes	Spoils will be generated during construction affecting the aesthetics appeal of the area.	No. This activity can be mitigated very successfully. Low significance.
4.2	Municipal waste (household and or commercial wastes)?	Yes	Domestic waste will be generated.	Medium significance should it not be properly managed.

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

5.6	Emissions from incineration of waste?	No		
5.7	Emissions from burning of waste in open air (eg slash material, construction debris)?	Yes	Burning of waste will negatively affect the air quality.	The significance will be low negative.
5.8	Emissions from any other sources?	No		

6. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?

No.	Questions to be considered in Scoping	Yes/No/?	Which Characteristics of the Project Environment could be affected and how?	Is the effect likely to be significant? Why?
6.1	From operation of equipment eg engines, ventilation plant, crushers?	Yes	The mining of borrow pits and production equipment produces noise and vibrations	The significance might be medium due to some receptors living to the east of the operations.
6.2	From industrial or similar processes?	No		
6.3	From construction or demolition?	Yes	Construction will produce noise.	Low significance due to low receptor density.
6.4	From blasting or piling?	No		
6.5	From construction or operational traffic?	Yes	The hauling trucks will produce noise and vibration.	No. The impact is very local and is not significant.
6.6	From lighting or cooling systems?	No		
6.7	From sources of electromagnetic radiation (consider effects on nearby sensitive equipment as well as people)?	No		
6.8	From any other sources?	No		

7. Will the Project lead to risks of contamination of land or water from releases of pollutants on the ground water into sewers, surface water, groundwater, coastal waters or the sea?				
No.	**Questions to be considered in Scoping**	**Yes/No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
7.1	From handling, storage, use or spillage of hazardous or toxic materials?	Yes	Spillage of oils and other hydrocarbon may affect the water and soil.	With no mitigation the significance might be medium.
7.2	From discharge of sewage or other effluents (whether treated or untreated) to water or the land?	Yes	Effluent at the construction site might impact negatively on the surface water, soils and health and safety of the workforce.	Should the sewage not be properly managed the negative impact might be significant.
7.3	By deposition of pollutants emitted to air, onto the land or into water?	Yes	Gasses from the machines.	No. The volumes of emissions are limited.
7.4	From any other sources?	No		
7.5	Is there a risk of long term build-up of pollutants in the environment from these sources?	No		

8. Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?				
No.	**Questions to be considered in Scoping**	**Yes/No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
8.1	From explosions, spillages, fires etc from storage, handling, use or production of hazardous or toxic substances?	No		
8.2	From events beyond the limits of normal environmental protection eg failure of pollution controls systems?	No		
8.3	From any other causes?	Yes	The health and safety of road users might be affected by construction vehicles.	Might be significant if proper road traffic management is not conducted during the construction phase.
8.4	Could the project be affected by natural disasters causing environmental damage (eg floods, earthquakes, landslip, *etc)?*	No		

9. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?				
No.	**Questions to be considered in Scoping**	**Yes/No/?**	**Which Characteristics of the Project Environment could be affected and how?**	**Is the effect likely to be significant? Why?**
9.1	Changes in population size, age, structure, social groups etc?	No		
9.2	By resettlement of people or demolition of homes or communities or community facilities eg schools, hospitals, social facilities?	No		
9.3	Through in-migration of new residents or creation of new communities?	No		
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 low 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?	No		
10.2	Will the project lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment eg: • supporting infrastructure • housing development • extractive industries • supply industries • other?	No		

10.3	Will the project lead to after-use of the site which could have an impact on the environment?	?	Some small scale economic activities might be developed during operation of the crusher.	Low positive.
10.4	Will the project set a precedent for later developments?	No		
10.5	Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects?	No		

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

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

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

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

Question - Is the Project in a location where it is likely to be highly visible to many people?
This BP area is not used extensively; therefore, the location is not highly visible to many people.

Question - Is the Project located in a previously undeveloped area where there will be loss of Greenfield land?
Partially. The existing BP might be enlarged.

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

There is an existing BP, but might be enlarged.

Question - Are there any plans for future land uses on or around the location which could be affected by the Project?
No. The area will probably remain agricultural / communal.

Question - Are there any areas on or around the location which are densely populated or built-up, which could be affected by the Project?

No, the area is rural residential with low population density.

Question - Are there any areas on or around the location which are occupied by sensitive land uses which could be affected by the Project?

No.

Question - Are there any areas on or around the location which contain important, high quality or scarce resources which could be affected by the Project?

There are no scarce resources found around the project that could be influenced by the construction or operational phases of this project, but there are some flora species (trees) that are protected by Forestry Legislation.

Question - Are there any areas on or around the location of the Project which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?

No. The area has been subject to agricultural and rural residential activities.

Question - Is the Project location susceptible to earthquakes, subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems?

No. The area is very flat with limited floods, erosion or impacts on the climatic conditions.

Question - Is the Project likely to affect the physical condition of any environmental media?

Yes, geological material will permanently be removed from the BP. The topography will permanently be altered.

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 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 operational phase of the crusher but will be limited to the site.
- The air quality will return to normal once operations stop.

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

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

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

- The quality of air will be affected due to crusher operation activities and material hauling. Even though this is the case, human health might not be problematic.
- No mortality or morbidity might be experienced by human receptors.

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.

No.	Activity	Aspect / Impact	Positive / Negative	Significance
1.1	Permanent or temporary change in land use, land cover or topography including increases in intensity of land use?	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	Medium
1.2	Clearance of existing land, vegetation and buildings.	Clearing of vegetation for construction operations influencing the vegetation, soils and topography. It is very unlikely that any buildings will be cleared.	Negative	Medium
1.3	Creation of new land uses.	The existing land use will change from undetermined / agricultural to road (land use).	Negative	Low
1.4	Pre-construction investigators egg boreholes, soil testing?	Materials testing are required to obtain construction materials which will affect the topography and vegetation cover.	Negative	Low
1.5	Construction activities.	During construction aspects such as social, soil, surface water, vegetation and geology can be affected.	Negative	Low
1.7	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. Soil, water pollution as well as health and safety concerns.	Negative	Low
1.8	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 BP activities. Change of land use, topographical and aesthetic aspects. Health and safety is also an aspect to consider.	Negative	Medium
1.15	Facilities for storage of goods or materials.	Pollution of soils and water.	Negative	Low

1.16	Facilities for treatment or disposal of solid wastes or liquid effluents?	Sewage effluent from the camp sites need to be treated or disposed. Soil and water pollution as well as health and safety.	Negative	Medium
1.18	New road, rail or sea traffic during construction or operation?	Construction of an access road to the BP and traffic increase due to movement of construction vehicles. Health and Safety risks as well as degradation of air quality.	Negative	Low
1.24	Abstraction or transfers of water from ground or surface waters?	Water will be extracted for the construction phase of the project. Deterioration of water availability.	Negative	Low
1.26	Transport of personnel or materials for construction, operation, or commissioning?	Health and safety (road users and workers), air quality (noise and dust).	Negative	Low
2.1	Land especially undeveloped or agricultural land?	During operation, geological materials will be used for the filling and layer works. Soils will be affected and might therefore impact negatively on the agricultural / communal land.	Negative	Low
2.2	Water?	Water is used for domestic and construction purposes. Water availability may decline.	Negative	Low
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)?	Hydrocarbons always pose a risk to the environment. Soil and water pollution.	Negative	Medium
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.	Negative	Low
3.4	Are there especially vulnerable groups of people who could be affected by the project eg hospital patients, the elderly?	There are some rural households to the east of the existing BP. Noise and dust might impact on these residents.	Negative	Medium
4.1	Spoil, overburden or mine wastes?	Spoils will be generated during construction	Negative	Low

		affecting the aesthetics appeal of the area.		
4.2	Pollution on site (domestic and construction waste).	Pollution of the natural environment (soil and water).	Negative	Medium
4.3	Hazardous or toxic wastes (including radioactive wastes)?	Used oils and old batteries can contribute to pollution of soils, water, and fire risk.	Negative	Low
4.6	Sewage sludge or other sludge from effluent treatment?	Sewage is produced at the construction camp. Pollution potential to water and soil as well as health and safety risk.	Negative	Medium
4.9	Contaminated soils or other material.	There is always a possibility that contamination of soils can occur during operation due to spillage of oils / diesel.	Negative	Low
5.4	Emissions from combustion of fossil fuels from stationary or mobile sources.	Gasses such as Nox and Sox are deposited in the air from the machines.	Negative	Low
		The movement from vehicles will generate noise, dust and gaseous emissions.	Negative	Low
5.7	Emissions from burning of waste in open air (eg slash material, construction debris)?	Burning of waste will negatively affect the air quality.	Negative	Low
6.1-6.5	From operation of equipment e.g., engines, ventilation plant, crushers?	The mining of borrow pits and production equipment produces noise and vibrations resulting in air quality deterioration.	Negative	Medium
7.1	From handling, storage, use or spillage of hazardous or toxic materials?	Contamination of land or water from releases of pollutants on the ground water into sewers, surface water, or groundwater.	Negative	Low
7.2	From discharge of sewage or other effluents (whether treated or untreated) to water or the land?	Contamination of land or water from releases of pollutants on the ground water into sewers, surface water, or groundwater.	Negative	Low
7.3	By deposition of pollutants emitted to air, onto the land or into water?	Contamination of land or water from releases of pollutants on the ground water into sewers, surface water, or groundwater.	Negative	Low

9.5	By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?	The local and larger community will benefit from the construction phase and may extend due to infrastructure and new facilities at the crusher site..	Positive	Low

The following environmental and social management plan addresses all of the abovementioned impacts to such an extent that all identified negative impacts will be reduced to near negligible.

The project area is very small, and the activities planned for the excavation and processing of the material is very localised restricting negative impacts to the surrounding areas.

9. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

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

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

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

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

9.1 ESMP Administration

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

9.2 Roles and Responsibilities

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

Engineer and Engineer's Representative (ER)

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

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

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

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

Environmental Control Officer (ECO)

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

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

9.3 Environmental Awareness Training

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

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

As a minimum, training should include:

- Explanation of the importance of complying with the ESMP.
- Discussion of the potential environmental impacts of construction activities.
- The benefits of improved personal performance.

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

9.4 Public Participation

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

9.5 Environmental Auditing

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

Benefits derived from the audit process include:

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

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

9.6 Documentation, Record keeping and Reporting Procedures

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

- ESMP implementation activity specifications;
- training records;
- site inspection reports;
- monitoring reports; and
- auditing reports.

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

9.7 Environmental Mitigation Measures / Environmental Management Plan

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

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
9.7.1 MANAGEMENT AND MONITORING	To ensure that the provisions of the ESMP are implemented during construction.	The independent environmental consultant shall monitor that all aspects of the ESMP are implemented during the construction phase of the project. The environmental consultant shall conduct site inspections and attend meetings. The site meeting agenda shall make provision for reporting on non-compliance issues related to the ESMP.	Environmental consultant together with the ECO.
9.7.2 COMMUNICATION AND STAKEHOLDER CONSULTATION	To ensure that all stakeholders are adequately informed throughout construction and that there is effective communication with and feedback to the consultant and client.	a. The Contractor shall appoint an ECO from the construction team to take responsibility for the implementation for all provisions of this ESMP and to liaise between the contractor, community, and the Engineer. The ECO must be appointed at least 14 days after the site-handover. b. The Contractor shall at every site meeting report on the status of the implementation of all provisions of the ESMP. c. The contractor shall implement the environmental awareness training as stipulated in Section 9.3 above. d. The Contractor shall liaise with the social and environmental consultants regarding all issues related to community consultation and negotiation as soon as possible after construction commences.	Contractor/ Environmental Consultant to monitor.
9.7.3 HEALTH AND SAFETY	To ensure health and safety of workers and the public at all times during construction	a. The Contractor shall submit a strategy to ensure the least possible disruption to traffic and potential safety hazards during operation. b. The strategy should include a schedule of work indicating when and how road crossings (construction at existing intersections) will be made. The schedule should be updated and distributed to all stakeholders. c. The Contractor shall also liaise with the Traffic Authorities in this regard.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		d. Proper traffic and safety warning signs must be placed at the BP site as required by the Road Traffic and Transport Act, 1999 (Act 22 of 1999) and the Road Traffic and Transport Regulations promulgated in terms of the Act. e. The Contractor must adhere to the regulations pertaining to Health and Safety, with special reference to the provision of protective clothing. Failing to issue workers with the proper PPE, the Contract may be suspended until corrective actions were taken. f. Dust protection masks shall be provided to task workers if they complain about dust. g. Surface dust will be contained by wetting dry surfaces periodically with a water bowser, sprinkler system or any suitable method. This applies to all individual construction areas on site and to the sections of the road affected. h. Sprinkler systems shall be installed on the crusher to reduce dust from crusher operations. i. Restrict the highs of which the crushed materials is dropped. j. Crusher operation times shall be restricted from sun rise to sun set. k. Haul truck speed will be limited to only 30km/hours when driven on gravel roads. l. The hauling vehicles shall be covered when laden as to reduce dust while hauling. m. 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. n. The contractor shall enforce all relevant Health and Safety Regulations for the specific activities associated with this project. o. The Contractor shall implement a HIV/AIDS awareness programme as part of Health and Safety. p. Blasting may only be conducted by a qualified person and all laws and regulations will be enforced before and during blasting. Blasting shall be done in accordance with Clause 1222 of the Standard Specification of the Roads	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		Authority and the Explosives Act 26 of 1956 (Regulations promulgated as amended by the Explosive Amendment Act, 1993).	
9.7.4 CONSERVATION OF THE NATURAL AND HISTORICAL ENVIRONMENT	To minimise damage to soil, vegetation and historical resources during the construction phase. This includes soil crusting, soil erosion and unnecessary vegetation destruction. Management of water (domestic and construction).	a. Detailed instructions and final arrangements for protection of sensitive areas, keeping of topsoil and rehabilitation of disturbed areas shall be made, in line with the guidelines in this document. The ECO shall be consulted before any new areas are disturbed which have not yet been visited. b. No off-road driving shall be allowed, except on the agreed haul and access roads. c. A prescribed penalty will be deducted from the Contractor's payment certificate for every mature tree removed without approval. d. 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. e. A prescribed penalty will be deducted from the Contractor's payment certificate if it is shown that trees and/or branches have been broken down wilfully and unnecessarily, or that any plants have been collected illegally, by any of the staff or sub- contractors. f. Trees that need to be trimmed should be done so with the right equipment and aesthetical acceptable. The use of a saw fit for its purpose is obligatory and the branches of trees will not be broken off by the use of other machinery. g. The protected Aloe species shall not be removed. The areas where these plant occur shall be avoided. h. 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. i. Where compaction has taken place in disturbed areas, these areas must be ripped and covered with topsoil separately kept for this purpose. This aspect shall be provided for in the schedule of quantities – covered by the Standard Specification of the contract. j. Poaching or collecting of wild animals is prohibited.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		k. The killing of any animal (reptile, bird or mammal) is prohibited, unless for legal hunting purposes. l. A prescribed penalty will be deducted from the contractor's payment certificate if it is shown that any of his staff or sub-contractors are involved in trapping, hunting or any kind of collecting of wild animals in the vicinity of the work sites. Such activities shall be reported to Nampol for prosecution. m. Pipelines for the pumping of construction water shall as far possibly run within the road reserve and along existing tracks and other roads. n. Water will not be allowed to be wasted. This includes water required for construction and domestic purposes.	
9.7.5 BORROW PIT MANAGEMENT AND REHABILITATION	To ensure proper soil management (combat soil erosion and promote biological activities). Preserve and manage natural vegetation. To ensure health and safety around the borrow pits (decommissioning phase). To stimulate ecological processes after decommissioning (to stimulate vegetation and other biological activities).	a. The removal of material at borrow-pit sites shall be focused where the least significant vegetation exists. If material is only available around significant mature trees (more than 500 cm circumference – 1 meter above ground), clusters of trees should be preserved while suitable material is excavated around them. A 3-meter buffer must be conserved around the cluster of mature trees. The ER shall visit all proposed borrow-pit areas and indicate where and how material may be removed, before works commence. A **cluster constitutes 5 or more trees in proximity (within 20m radius).** b. The Contractor shall use safety tape to mark these tree clusters as to avoid confusion or miss-understandings. c. The Engineer shall draft a plan for the proposed borrow pit. This plan must indicate the required resources; borrow pit boundaries and sensitive areas that may not be mined (indication of the mature trees). d. The borrow pit areas will be clearly marked by using brightly painted markers. These markers will demarcate the area where materials might be removed and stored. e. All borrow-pits must be rehabilitated. f. The contractor shall liaise with the applicable local headmen OR residents regarding whether their borrow-pits shall be shaped as water reservoirs during rehabilitation.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
	To establish borrow pits which is aesthetically pleasing after decommissioning.	g. At those borrow-pits not to be shaped as reservoirs, topsoil (the top layer containing organic material) shall be stockpiled separately and the stockpile maintained for use at the end of the contract to rehabilitate the borrow pits. h. The topsoil shall be marked as to inform the machine operators that the material is top soil and should be left alone for rehabilitation purposes. i. The borrow pits shall be rehabilitated by trimming the sides to a slope not steeper than 20° (1:5) and evenly spreading the topsoil over the slopes to allow for the growth of new vegetation. j. All spoil material at the borrow pits shall be neatly shaped and covered with overburden (if available). k. Access to borrow pits shall be controlled (using gates or manned positions). l. The borrow pit floor shall be levelled evenly as part of rehabilitation. m. A Borrow Pit Rehabilitation Plan shall be compiled by the Contractor indicating the rehabilitation schedule (time-frames) for the various borrow pits to be rehabilitated. n. After the borrow pit has been rehabilitated, the Rehabilitation Checklist will be completed and signed by the relevant parties.	
9.7.6 WASTE AND POLLUTION MANAGEMENT	To avoid contribution to potential surface and groundwater pollution. To avoid contribution to potential soil pollution. To ensure that sound waste management practices are adhered to during construction.	a. General waste generated during construction will be disposed of on a regular basis at an approved waste disposal site. A temporary waste site may be demarcated for temporary storage of waste, but this area will be identified and clearly marked. b. The temporary domestic waste site will be fenced off with access control to the area. c. Adequate separate containers for hazardous and domestic waste will be provided on site and at the construction camp. d. The workforce will be sensitised to dispose waste in a responsible manner and not to litter. e. Waste bins will be placed in and around the construction site to facilitate proper waste management.	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		f. No hazardous or domestic waste may remain on site after completion of the project. g. The construction of properly designed sewage facilities is required at the camp site. The sewage should either be removed on a regular basis and dumped at an approved sewage facility or where it is not possible, the sewage should be managed to such an extent that is does not cause any negative effects on the bio-physical or social environments. Proof of disposal shall be kept as record in the ECO file for environmental performance assessment purposes. No free-flowing sewage is acceptable. h. Toilet facilities will be available in the following ratio: 2 toilets for every 20 females and one toilet for every 20 males. The toilets should be such that these can be transported for various site selections and to be emptied at an approved sewage site. No person should have to walk more than 1km for the use of a toilet. i. A demarcated vehicle service area will be provided. This area will have an impermeable floor, oil trap and dedicated wash bay area. All used water will first run through the oil trap before the effluent is allowed to exit. The oil trap will be cleaned on a regular basis to ensure its efficiency. j. Servicing of vehicles is only permitted in the demarcated vehicle service area, except for large immobile vehicles which may be repaired on site, on condition that oils and lubricants are prevented from spilling through the use of drip trays or other suitable containers. k. Drip trays will be available for all vehicles that are intended to be used during construction. These trays will be placed underneath each vehicle while the vehicles are parked. The drip trays will be cleaned every morning and the spillage handled as hazardous waste. l. Machines operating during the day that show signs of excess leaking (verified by ECO or Engineer) should be withdrawn from the task and repaired by the contractor. m. Accidental spills will be cleaned immediately. The contaminated soil will be suitably disposed of in a container suitable for hazardous waste.	

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	RESPONSIBILITY/ PARTNERSHIPS
		n. Used oil / lubricants, and other hazardous materials shall be stored in separate containers (metal or plastic). These containers shall be stored in an area with an impermeable floor and bunded walls. The materials and used oils / lubricants shall be disposed of at an approved waste disposal site or for collection by an oil recycling company such as WESCO Salvage (this company collects significant quantities of oil from central locations throughout the country). o. Fuel tanks on site will be properly bunded. The volume of the bunded area will be enough to hold 1.5 times the capacity of the storage tanks. The floor of the bunded area will be impermeable (welded plastic sheets, concrete or clay) and the sides high enough to achieve the 1.5 times holding capacity. There will be a valve installed in the bunded area to allow rainwater drainage. p. Foam fire extinguishers will be near fuel kept on site. There will be trained personnel to handle this equipment. At least two extinguishers will be placed at every fuel storage area.	
9.7.7 REHABILITATION OF CONSTRUCTION SITE, SERVITUDES AND CLEARED AREAS (WHICH INCLUDES STOCKPILES)	To rehabilitate the site office, work sites, servitude areas, tracks and other areas disturbed during construction as close to their original state as reasonably possible.	a. All bunded areas, equipment, waste, temporary structures, stockpiles etc. must be removed from the camp and construction sites. b. All disturbed areas shall be reshaped to their original contours; as close as possible to the natural conditions before construction commenced, including the road reserve, detours, construction camps, and temporary access routes. c. All cuttings must be shaped with a slope to provide a natural appearance, without having to destroy significant vegetation on top of the slope (this applies to big trees as mentioned in the ESMP only).	Contractor will ensure the mitigation measures are enforced at his own expense. The ECO will monitor.

9.8 Non-Compliance

A) Procedures

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

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

B) Offences and Penalties

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

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

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

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

a.	Actions leading to erosion	A penalty equivalent in value to the cost of rehabilitation plus 20%
b.	Oil spills or hydrocarbon spillages	A penalty equivalent in value to the cost of clean-up operation plus an N$ 5000 fine.
c.	Damage to indigenous vegetation	A penalty equivalent in value to the cost of restoration plus N$ 5 000
d.	Damage to sensitive environments	A penalty equivalent in value to the cost of restoration plus N$ 5 000
e.	Damage to cultural sites	A penalty to a maximum of N$100 000 shall be paid for any damage to any cultural/ historical sites
f.	Damage to trees	A penalty to a maximum of N$15 000 shall be paid for each tree removed without prior permission, or a maximum of N$5 000 for damage to any tree, which is to be retained on site.
g.	Damage to natural fauna	A penalty to a maximum of N$5 000 for damages to any natural occurring animals.
h.	Any persons, vehicles, plant, or thing related to the Contractors operations within the designated boundaries of a “no-go” area	N$4 000
j.	Litter on site	N$5 000
k.	Deliberate lighting of illegal fires on site	N$ 5 000
l.	Any person, vehicle, item of plant, or anything related to the Contractors operations causing a public nuisance.	N$1 000
m.	Constant leakages from the sewage system.	N$ 15 000

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

For each subsequent similar offence, the fine may, at the discretion of the Engineer, be doubled in value to a maximum value of N$ 30, 000.

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

10. CONCLUSION AND RECOMMENDATIONS

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

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

This project does not pose significant environmental risks because the existing BP will be used with some possible expansion. 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.

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APPENDIX A

BASIC RULES OF CONDUCT

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

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

DO:

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

DO NOT:

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

APPENDIX B

REHABILITATION CHECKLIST FOR THE FINALIZATION OF BORROW PITS

Borrow Pit Name and Number: _____ Date: _____

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

Criteria for rehabilitation according to the EMP:

Item Number	Description	Comments	Complied Yes / No
1	Gradient of the borrow pit walls are less than 20 degrees (1:5).		
2	The walls is covered with overburden/top soil with a thickness of more than150 mm.		
3	The floor of the borrow pit is level and no material is found within the pit.		
4	The compacted areas are ripped to a minimum depth of 300mm.		
5	No man made topographical high or low points are found in or around the borrow pit. These might include berm walls, excavation holes, stock piles, etc.		
6	The site is clear of any illegal dumping of foreign or other materials in and around the borrow pit.		
7	All invasive vegetation has been removed from site.		

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

Signed off by: Environmentalist: _____

_____ _____

Residing Engineer / Authorized Person Land- Owner

APPENDIX C

CURRICULUM VITAE OF COMPILER