

**DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED UPGRADE AND CONSTRUCTION OF MBILANE
ACCESS ROAD (3.6 KM LENGTH) INTO A TYPE 7A GRAVEL ROAD (WITH A 6 M WIDTH) IN
WARD 08, NQUTU AREA, KWA-ZULU NATAL**

(Prepared in Terms of EIA Regulations, 8 December 2014) (As Amended)

PREPARED FOR



Nquthu Local Municipality



Anderson Vogt Engineers

PREPARED BY



Isolendalo Environmental Consulting

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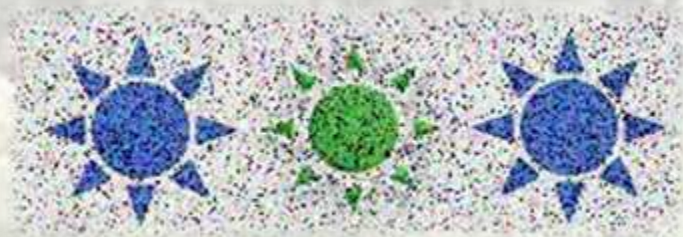
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When used as a reference this report should be cited as: Isolendalo Environmental Consulting, "the Final Basic Assessment Report (FBAR), reference DC23/0021/2018: KZN/EIA/0001042/2018 for The upgrade and construction of Mbilane access road within Nquthu Local Municipality, within Umzinyathi District Municipality, Kwa-Zulu-Natal Province, DC 23".

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DATE			

REFERENCE NUMBERS AND DUE DATES

EAP DOC REF	MBI-001BAR
CA REFERENCE FILE	DC23/0021/2018: KZN/EIA/0001042/2018
NEAS REF FILE	
DBAR DEADLINE	27 February 2018
CA DEADLINE FBAR	27 March 2019

EXECUTIVE SUMMARY:

Nquthu Local Municipality is proposing to undertake the upgrade and construction of Mbilane access road which is an informal road existing as a lineage of tire tracks and foot trails that connect the community of Mbewunye A/A and Patsoana A/A, within ward 08, stemming from L2041 to D1297. The National Environmental Management Act (Act No. 107 of 1998) (also referred to as 'the Act') in South Africa aims - "to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith" (Page 2 of The NEMA (Act no. 107 of 1998).

The proposed activity falls within the threshold of Listed Activities within GN no. 983 within the EIA regulations 2014 (Gazette No. 38282) as promulgated in terms of the Act. As a result, Isolendalo Environmental Consulting has (in terms of regulation 13 of the amended EIA regulations 2014) been appointed to provide the services necessary to obtain an Environmental Authorization. The information provided within this document is given in good faith and in all transparency for an informed decision making by the competent authority (EDTEA, Umzinyathi District). This Basic Assessment Report has been compiled as part of the EA application which has been issued a reference DC23/0021/2018.

The objectives of this BAR, as required in the amended EIA Regulations 2014; -

- (a) determine the policy and legislative context within which the activity is located and how the proposed activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives;
- (d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine –
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts -
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be avoided, managed or mitigated; and
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to –
 - (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) Identify suitable measures to avoid, manage or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

The table of contents traces the location of each objective within this document. The scope of this document is however broadened to meet the requirements noted also within Appendix 1, Appendix 3, appendix 4 (EMPr is attached within this document), Appendix 5 and appendix 6 for all these appendices have been a guideline to the completion of this document through consultative means between the EAP and other specialists.

SECTION A

PROJECT SETTING

ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP):

Trading name (if any):	Isolendalo Environmental Consulting		
Contact person:	Welcome Nogobela		
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E-mail:	wnogobela@isolendalo.co.za		

EAP EDUCATIONAL QUALIFICATIONS AND CVs, AND EAP PROFESSIONAL TEAM INVOLVED IN COMPILING THE BAR

Name & Surname	Qualifications	Professional affiliations	Experience (Yrs)
Welcome Nogobela	BSc. Hons Environmental Science	IAIASA 3333	15
Lwandisa Fada	BSc (Hons) Environment and Water Sciences.	//	4
Onesimo Jiba	BSc Environmental Studies	//	3
Full CV's are attached within annexure G.			

APPLICANT DETAILS

Trading name:	Nquthu Local Municipality	
Contact person:	Mr. Bongji Paul Gumbi	
Physical address:	83 Mdlalose Street, Nqutu	
Postal address:	83 Mdlalose Street, Nqutu	
Postal code:	3135	3135
Telephone:	034 271 6100	034 271 6100
E-mail:	Siyabongas@nquthu.gov.za	

SPECIALIST QUALIFICATIONS, PROFESSIONAL AFFILIATIONS AND CREDENTIALS

Name of specialist	Field of Expertise	Location within the document Section/s	Title of specialist report/ s as attached
The Biodiversity Company	Wetland Impact Assessment	Annexure E	Wetland Assessment for the proposed Mbilane Road & Culvert Upgrade.

SECTION B

PROJECT DETAILS, DESCRIPTION, ACTIVITIES TRIGGERED AND LEGISLATIVE FRAMEWORK

PROJECT NAME:

The upgrade and construction of Mbilane access road.

PROJECT DESCRIPTION:

Mbilane access road (3.6 km) is an informal road divided into sections of tire tracks, foot trails and semi-gravel surfaces that are not uniform in terms of width and road surfacing. The road adjoins two administrative areas, namely Mbewunye A/A and Patsoana A/A within ward 08 within Nquthu Local Municipality. From Mbewunye, Mbilane access road starts from District Road 1297 (D1297) and tranverses 'drainagelines' before it ends at Local Road 2041 (L2041). Nquthu Local Municipality proposes to upgrade and construct Mbilane access road (length of 3.6 km) into a type 7A gravel road that has a uniform width of 6 m. Below are images of the current state of the road.



Figure 1: Mbilane access road start.



Figure 2: Mbilane access road mid section.



Figure 3: Mbilane access road Mid section.



Figure 4: Mbilane access road towards the end.

SPECIFICATION, AND SCOPE OF THE PROPOSED PROJECT:



Figure 5: A google map mapping out a photographic representation of the proposed project.

- From Mbewunye (D1297) the road starts off as tire tracks that transverse a number of small bare watercourses, causing mudding when disturbed (pipe culverts are therefore proposed), it ends at **P14** (image 1, road portion 1) one of two bigger watercourses being applied for, proposed crossing 50.83 m². This first section of the road totals to a length 1,61 km.
- The road transverse the major watercourse at a top section of this watercourse where it is shallow, but very dangerous to drive on as the vehicle may get stuck or tip-over (Image 1, current alignment). The Municipality proposes to re-align this crossing area so that the road will cut straight across the watercourse to the second major watercourse **P15**, proposed crossing 50.83 m². The new alignment between these major crossings is proposed on virgin ground and will total a length that is 0.16 km (Hence the construction part of the project title).
- From (**P15**) the road then continues for 1.93 km to the end of the road (L2041). This section is divided into portions of gravel surfaces with bare rock, soil and other cleared areas are dominated by grass on the surface with only tire tracks. This section is dominated by dry drainage lines that are evidently eroded by rains since they are extremely dry with no visual observations of surfacewater. Hence, the municipality through anderson Vogt Enginners, proposes to install concrete slabs.

As a result of the watercourses mentioned above, crossing structures are proposed as well as drainage structures. The table below provides the details of each of the above-mentioned stormwater management and drainage structures.

No	Name	Y- Co ord.	X-Co ord.	Type	Precast Structure					IN -& OUT- let structures		Total area (m ²)
					Size	Dia (mm)	L (m)	Barrels	A (m ²)	In (m ²)	Out (m ²)	
1	P1	-28.245537	30.741649	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
2	P2	-28.246051	30.742540	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
3	P3	-28.246367	30.744013	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
4	P4	-28.246818	30.744887	Precast Concrete Pipes	Ø900 pipe	1035	9.46	1	9.79	4.43	4.43	18.64
5	P5	-28.247671	30.746106	Precast Concrete Pipes	Ø900 pipe	1035	9.46	2	23.93	6.77	6.77	37.48
6	P6	-28.248076	30.747382	Precast Concrete Pipes	Ø900 pipe	1035	9.46	1	9.79	4.43	4.43	18.64
7	P7	-28.248490	30.748463	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
8	P8	-28.248434	30.749521	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
9	P9	-28.248304	30.750741	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
10	P10	-28.248329	30.751888	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
11	P11	-28.248331	30.752566	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
12	P12	-28.248228	30.754039	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
13	P13	-28.248063	30.754969	Precast Concrete Pipes	Ø900 pipe	1035	9.46	1	9.79	4.43	4.43	18.64
14	P14	-28.247946	30.755968	Precast Concrete Pipes	Ø1200 Pipe	1375	9.46	2	30.37	10.23	10.23	50.83
15	P15	-28.248229	30.757716	Precast Concrete Pipes	Ø1200 Pipe	1375	9.46	2	30.37	10.23	10.23	50.83
16	P16	-28.248933	30.758953	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
17	P17	-28.249881	30.759717	Precast Concrete Pipes	Ø1200 Pipe	1375	9.46	1	13.01	6.61	6.61	26.23
18	CS 1	-28.250484	30.760031	Concrete Slab	18 x 6	N/A			N/A		108.00	
19	P18	-28.251934	30.761210	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
20	P19	-28.252321	30.761806	Precast Concrete Pipes	Ø900 pipe	1035	9.46	1	9.79	4.43	4.43	18.64
21	P20	-28.252572	30.762151	Precast Concrete Pipes	Ø1200 Pipe	1375	9.46	1	13.01	6.61	6.61	26.23
22	CS 2	-28.253226	30.763722	Concrete Slab	20 x 6	N/A			N/A		120.00	
23	CS 3	-28.253318	30.764894	Concrete Slab	30 x 6	N/A			N/A		180.00	
24	P21	-28.253307	30.766220	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
25	P22	-28.253520	30.767153	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43
26	CS 4	-28.252550	30.768101	Concrete Slab	30 x 6	N/A			N/A		180.00	
27	CS 5	-28.252350	30.770239	Concrete Slab	20 x 6	N/A			N/A		120.00	
28	P23	-28.250772	30.772059	Precast Concrete Pipes	Ø600 pipe	700	9.46	1	6.62	2.90	2.90	12.43

LEGISLATIVE FRAMEWORK

A number of Acts and Policies from national and provincial governments deal with spatial and physical development. It is impractical to deal with each one of these documents in detail. This section, therefore, instead focuses on legislation and policies that have a fundamental impact and have been considered in developing this document to cover the scope of the requirements noted within the EIA regulations 2014 for consideration of the application for the proposed activity.

Regulation	Relevancy to the Proposal /Compliance
National Environmental Management Act 107 of 1998, as amended	To provide for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.
Environmental Impact Assessment Regulations, 2014	The EIA Regulations 2014, promulgated under NEMA (1998), focus primarily on creating a framework for cooperative environmental governance. Activities falling within the threshold of listed activities within the EIA Regulations 2014, as amended, require environmental authorization (EA) and must undergo an environmental assessment process and be authorized by the relevant Department of Environmental Affairs body prior commencement. Developments which trigger activities/ fall within the threshold of Activities Listed in Listing Notice 1 must apply for Environmental Authorization through the Basic Assessment Process. Those which trigger Listing Notice 2 Activities must apply through the Full EIA Process (Scoping and EIA) and where both Notices are triggered, requirements for activities listed under listing 2 apply unless otherwise agreed with the competent authority.
National Environmental Management: Biodiversity Act 10 of 2004	To provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio - prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.
National Water Act No 36 of 1998	To provide for fundamental reform of the law relating to water resources; to repeal certain laws; and to provide for matters connected therewith.
The National Waste Management Act No. 59, of 2008	To reform the law regulating waste management in order, to protect health and the Environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system ;to provide for compliance and enforcement; and to provide for matters connected therewith .
Constitution of Republic of South Africa (Act No 108 of 1996)	Section 24 in the Bill of Rights of the Constitution specifically states that: Everyone has the right – To an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – Prevent pollution and ecological degradation; Promote conservation; and Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.
Nquthu Local Municipality By Laws	Applicable municipal by-laws which govern how developments within its area of administration commence as contained within the IDP, as reference within this document in a number of sections.

LISTED ACTIVITIES TRIGGERED IN TERMS OF EIA REGULATIONS, 2014:

ACTIVITY TRIGGERED	LISTING NOTICE	HOW IT TRIGGERS	Specification of the triggering aspect of the project
Activity 12	GNR 983: Listing Notice 1 (December 2014, as amended)	The development of – (ii) Infrastructure or structures with a physical footprint of 100 square metres or more where such development occurs – (a) within a watercourse;	<ul style="list-style-type: none"> 05 Concrete slabs are proposed within watercourses and the concrete slabs have areas ranging between 108 m².
Activity 19	GNR 983: Listing Notice 1 (December 2014, as amended)	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;	<ul style="list-style-type: none"> P14 & P15 are exemplary structures that will be developed within watercourses, each structure will have a height of 1.2 m, hence the volume of each is 60.996 m³ other structures, including the proposed concrete slabs are also proposed within watercourses identified on site.

SECTION C

SITE LOCATION

21 DIGIT SURVEYOR GENERAL OF THE PROJECT STUDY AREA

N	O	G	T	0	0	0	0	0	0	0	0	1	5	8	3	8	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

SITE COORDINATES

ROAD START			
Latitude /Longitude	Degrees	Minutes	Seconds
South	28	14	43.4
East	30	44	29.8
ROAD MID.			
Latitude /Longitude	Degrees	Minutes	Seconds
South	28	14	53.03
East	30	45	17.89
ROAD END			
Latitude /Longitude	Degrees	Minutes	Seconds
South	28	15	02.8
East	30	46	19.8

ACCESS TO SITE (Directions)

Heading north of Nqutu via Iswandlwana Rd/ R68, turn right at Manzolwandle road, travel for 8,5 km then turn right, in front of Madudula Primary School, at 5,8 km you will have reached the start of the road which will be on your left-hand side (Image 1)

SITE CADASTRAL MAPS

Key: The map below has been attached for one main purpose, to help trace the project location within Kwa-Zulu Natal, Umzinyathi District Municipality, Nquthu Local Municipalit, and ward 08 within which the project is located.

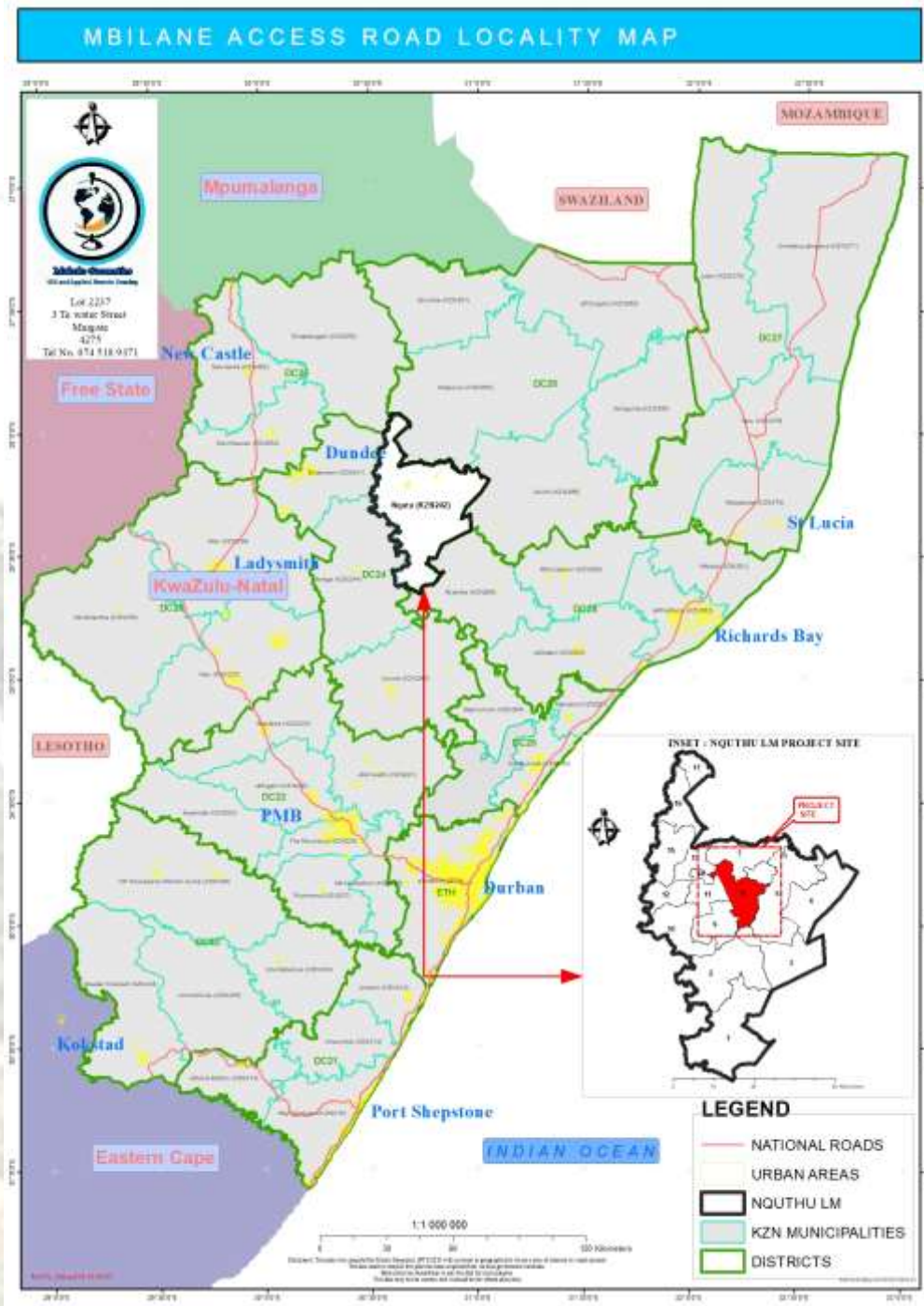


Figure 6: A mapping out of the locality of the proposed project. An A3 version of the map is attached within annexure A to provide a more readable map, in case this is not visible enough to the observing party.

SECTION D

ENVIRONMENTAL ATTRIBUTES

Geology, soils and climate form the basic geomorphic relationship which gives rise to hydrological, topographical and biodiversity patterns. To better understand environmental attributes to the study areas environment we have also referred areas beyond the boundaries of the study area since they too attribute to the subject environment.

CLIMATE

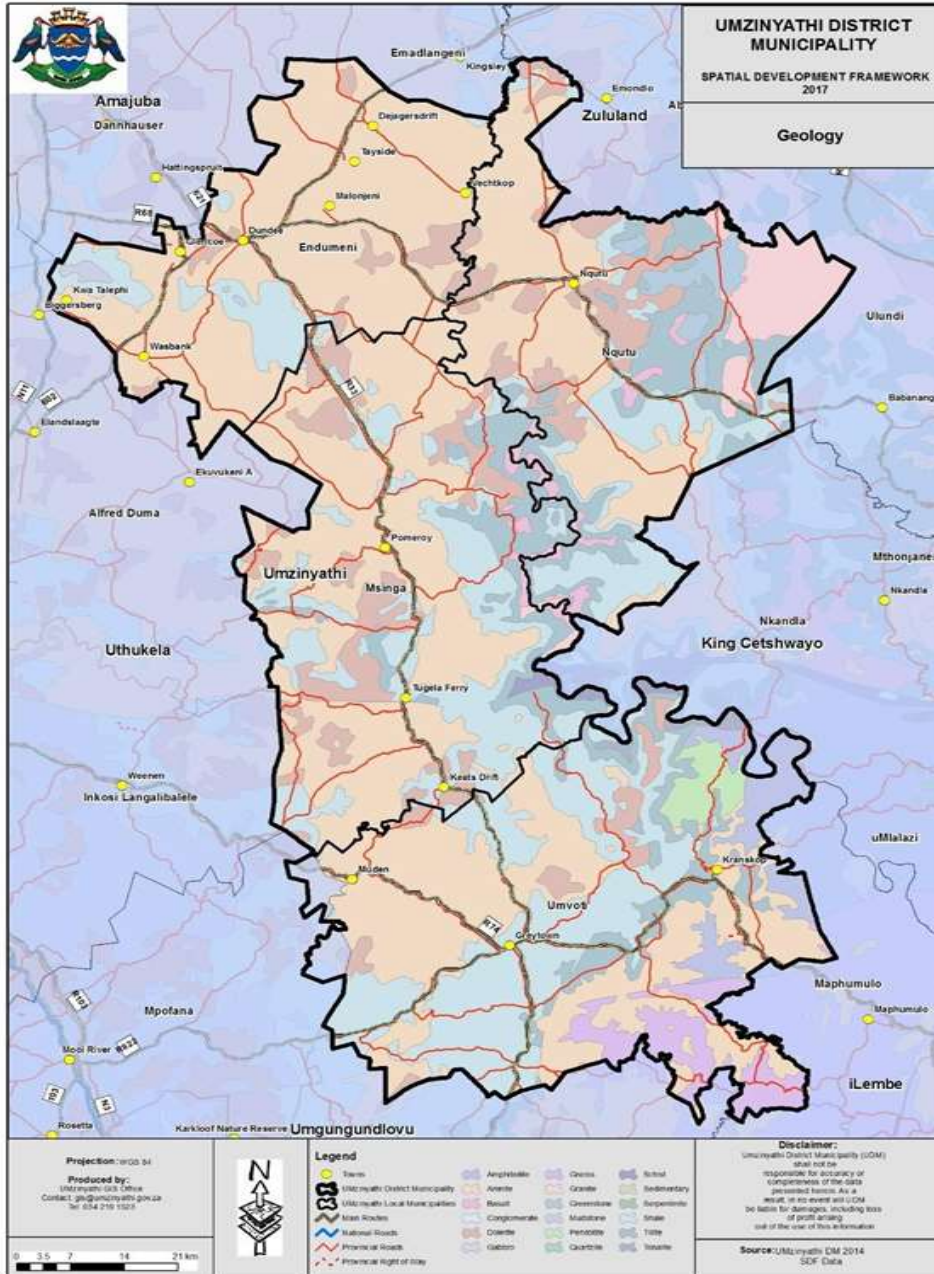
Mean annual rainfall within the Nquthu area ranges between 919mm in the southeast and 646mm in the southwest with northern and central areas receiving mean annual rainfall of about 738mm. The man annual temperature is 16.7°C with summers being warm to hot with mean maximum temperature of 23.2°C but reaching 25.7°C along the Buffalo River. Winters are cool with cold spells and moderate to light frosts.

THE HYDROLOGICAL CHARACTERISTICS

The project is located within the W21E Quaternary Catchment within the Pongola - Mtamvuna Water Management Area (WMA 4) (NWA, 2016). It must be noted that the section of the WMA the project is situated within was previously known as the Thukela Water Management Area. The portion of the WMA that the project lies mainly within the province of Kwazulu-Natal, the catchment is mainly composed of tributaries draining from the Drakensberg. Characterized by mountain streams in the upper reaches. Rainfall is concentrated along the mountains with a mean annual precipitation rate of 600 to 1500mm. Main impacts associated with the system are forestry and agriculture, Newcastle is the main area of industrial activity within the catchment. (StatsSA, 2010). (Wetland assessment, 6.1.2 Desktop Vegetation).

THE SOIL FORM AND STRUCTURE WITHIN THE AFFECTED REGION.

Land type	Characteristics
Fb267	Glenrosa and/or Mispah forms (other soils may occur); Lime rare or absent in upland soils but generally present in low-lying soils



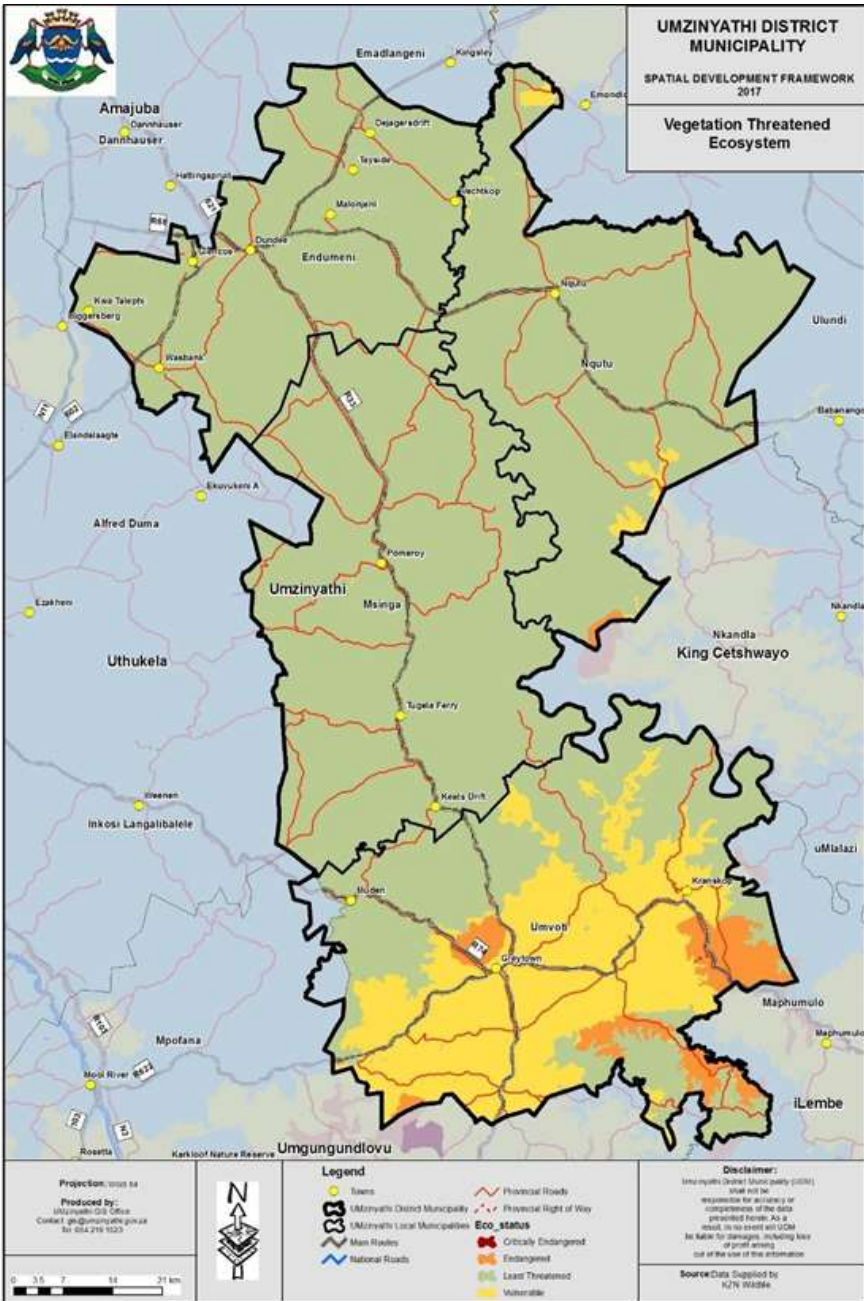
According to the land type database (Land Type Survey Staff, 1972 - 2006) the development falls within the Fb267 land type. The land type is dominated by Glenrosa and Mispah soils within the landscape. The landtype characteristics are described in the table above. (wetland assessment, 6.1.1 Desktop Soils, pg. 8)

Physical terrain

Nquthu lies inland of the relatively flat plain of Kwazulu Natal and lies between approximately 125 and 450 metres above mean sea level. The area is characterized by broken topography with plateaus comprised of rounded hilltops and bisected by gentle slopes incised river valleys in the East and a step escarpment falling into iSandlwane south. Nquthu Local Municipality is characterized mostly by Dolerite, Eccla group arenite and Shale (soils).

Figure 7: the overall geology of Umzinyathi District Municipality, Final 2017_22 IDP, Umzinyathi District, KZN.

Vegetation



The proposed project is situated within the KwaZulu-Natal Highland Thornveld vegetation unit. The distribution of the vegetation unit is restricted to the KwaZulu-Natal Province. The vegetation unit is found in altitudes that range from 920m – 1440m above sea level (Mucina & Rutherford, 2006). The unit occurs on both the dry valleys and the moist upland on a hilly and undulating landscape. The vegetation is dominated by tall grasses such as *Hyparrhenia hirta* with occasional intrusion of *Vechelia* woodlands which include *V. karroo*, *V. nilotica* and *V. sieberiana* var. *woodii* (Mucina & Rutherford, 2006). The conservation status is regarded as Least Threatened with a conservation target of 23%. Approximately 2% of the vegetation unit is statutorily conserved in the Spioenkop, Weenen, Ntinini, Wagendrift, Moor Park and Tugela Drift Nature Reserves. Over 16% of the vegetation unit has been already transformed for cultivation, by urban sprawl and construction of dams. Most of the area is used for subsistence farming. Alien species in the unit include *Opuntia*, *Eucalyptus*, *Populus*, *Acacia* and *Melia*. Erosion is very low (Mucina & Rutherford, 2006). (Wetland assessment, Desktop vegetation, page 8).

Figure 8: Vegetation Threatened Ecosystems, Final 2017_22 IDP, Umzinyathi District, KZN.

CULTURE AND/ OR HERITAGE

The site is located within a rural area with sustenance farming with the community mainly being Zulu speaking. A site survey was conducted with no extensive investigation with the purpose of identifying and documenting archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and structure of historical significance. However, the BAR has been submitted on the SAHRIS website to obtain statutory comments from Amafa KZN.

SECTION E

NEEDS AND DESIRABILITY

MOTIVATION OF ACTIVITY (Needs and Desirability) OF PREFERRED OPTION

a. Socio-economic desirability of the activity

What is the expected capital value of the activity on completion?	R 10 000 000
What is the expected yearly income that will be generated by or as a result of the activity?	N/A
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development phase of the activity?	± 35
What is the expected value of the employment opportunities during the development phase?	R 4 000 000
What percentage of this will accrue to previously disadvantaged individuals?	N/A
How many permanent new employment opportunities will be created during the operational phase of the activity?	N/A
What is the expected current value of the employment opportunities during the first 10 years?	N/A

b. The need and desirability for the road

A well compacted road with proper signage and safety guard rails at sharp bends for communities involved will be the resultant road. Providing a safe access road is the number one objectives of the applicant, Isolendalo Environmental Consulting, as appointed, will ensure that this objective is achieved with very minimal negative impact and most positive impacts to the environment, for the benefit of all entities that form part of the environment as noted in section 1 (Definitions) of the NEMA (Act no. 107 of 1998). The road will serve more than 200 people from within its location for different amenities and will improve the overall access to public transport through basic infrastructure as required by Section 152 of the constitution (see legislative framework section above) *spelling out the objectives of local government as insuring access to at least basic services and facilitating economic development within a framework of financial sustainability*. The upgrade and construction of Mbilane access road addresses one main issue which is assisting to provide of basic services to communities, is generally not safe. Services such as provision of health care through use of emergency mobile health care service (ambulance) and also provision of police service when required, especially to curb challenges of community violence and domestic violence within local community, who needed to access the community with better and drivable road access to provide basic services.

The motive behind the municipality's decision to upgrade the road is in two-fold; -

(1) they are to provide efficient, safe and reliable service to the community.

(2) Reliable road networks improve lives of the people as they are able to perform their everyday activities in safety and reliable infrastructure

MOTIVATION OF THE PREFERRED SITE

There are currently no site alternatives. The proposed project is solemnly to provide a link between the communities and also for the benefit of the people who are located along the existing lineage. No site alternatives have been considered, this has lesser environmental impacts as opposed to starting a new construction which will be utilised for the same purpose. The access road will provide ease of access to the area and within the boundaries of an area. Members of the community made it clear that they are in dire need for the road, especially because they have no access to public transportation in peak rain fall. Also, the road as it exists poses a threat to human life and livestock during peak rain fall. Moreover; access roads promote development; and may trigger the interest of development of SMMEs by capable parties. The creation of Job creation and skill development is an advantage within the area of the proposed upgrade; the overall employees will be from the local area. Introduction of such opportunities improve local people i.e. their livelihoods in terms of skills, economy and awareness hence making them more economically active and may reduce poverty. Such are encouraged by the South African government, i.e. in terms of BEE objectives, the Skills Development Act No. 97 of 1998 principles etc.

Technology Alternative

- The use of machinery with the assistance of human labour is the preferred alternative: this alternative is less likely to lead to injury, faster & cost effective
- The associated negative impacts include, a decrease in the number of job opportunities that will be created; Increased noise levels, spillage of hazardous substances etc., however the impacts associated with the use of machinery have been investigated through various means and can be reduced through the application of mitigation noted within the EMPr and this BAR.

NB: The construction mainly focused at human strength/ human labour has not been considered as a feasible alternative to implement for the project. Therefore, it has not been assessed within this document.

SECTION F

PUBLIC PARTICIPATION AND KEY STAKEHOLDER ENGAGEMENT PROCESS

DETAILED DESCRIPTION OF THE PROCESS FOLLOWED IN RESPECT TO PREFERRED ALTERNATIVE WITHIN THE SITE:

The EIA regulations 2014 (as amended) within chapter 6 contemplate the guidelines for a undertaking public participation. The land on which the project is proposed is under the control of the Nquthu Local Municipal Council, hence sub-regulation (1) does not apply on the application lodged to which this basic assessment report is applied. The public participation process to which this Basic assessment report and EMPr (contained within annexure F) was subjected is contemplated on the EIA regulations 2014 (as amended) regulation 40. **(See annexure D)**.

- (1) Stakeholders have been provided with this Draft BAR for commenting and all comments received will be attached within annexure D of this final BAR and they have been provided 30 days to comment on the Draft Basic Assessment Report development as per the amended EIA Regulations 2014.
- (2) The key stakeholders identified included:
 - Registered I&APs, Community members.
 - Department of Economic Development, Tourisms, Environmental Affairs
 - KZN Department of Water and Sanitation;
 - Ezemvelo KZN Wildlife; and
 - Amafa KZN.

Details of Alternatives Considered:

EIA Regulations 2014 (as amended) Regulation 41, provides for the process which must be undertaken for a legitimate public participation for consideration of the Application by the Competent Authority. 41 (1) provides that the regulation only applies in instances where adherence to the provisions of the public participation applies hence the regulation is applied to this BAR. Therefore, the public participation process was undertaken in terms of Regulation 41 (2) which notes the means by which the person conducting the public participation process must give notice to all potential interested and affected parties.

Regulation 41 (2)	(a)	site notices were erected on site taking into account the conditions noted in sub-regulations (3) & (4);
	(b)	the proponent is the Nquthu Local Municipality which is the governing body of the land within which the project, hence, the process noted in subsection (2) (a) complies with sub-regulation (2) (b);
	(c)	The advertisement for the proposed project was placed on Ilanga Provincial Newspaper, hence it complied with
	(d)	the requirements of (2) (c);
	(e)	No other alternatives were engaged with the community apart from the ones noted above as they were not deemed necessary;

Site Notices

The public participation process (as noted above) involved putting up site notices on site in Zulu and English. Site notices were placed on site on the 13th November 2018.

Advertisement

The proposed upgrade of the informal road was advertised on Ilanga newspaper on 14 January 2019.

Alternative Engagement with Community (if deemed Necessary)

No other alternatives were engaged with the community apart from the ones noted above as they were not deemed necessary.

Register of I&APs

A register of interested and affected parties was opened and maintained to contain the names, contact details and addresses of all the I&APs recorded as per Regulation 42 (a); (b); and (c), when applicable. The register is attached within annexure D.

Minutes of Public Meeting

- No minutes have been recorded since there was no meeting held.

Proof of Stakeholder Engagement

- The comments received are attached within annexure D of this report along with the response of the EAP.

Notification of Interested and Affected Parties

- Communication has been kept where necessary with stakeholders via telecommunication and E-mails when necessary, available records are presented in annexure D.

Issues Raised by IAP's

- All the comments and related information from the interested and affected parties are recorded and can be noted in annexure D as per regulation 44 (1).

SECTION G

ENVIRONMENTAL IMPACT ASSESSMENT OF ALTERNATIVE SITE IDENTIFIED AND ASSESSED

PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK IMPACTS

The process undertaken to identify, assess and rank and ranking the impacts the activity will impose on the preferred location was developed with the guidance of Appendix 1, Section 3 (Basic Assessment Process). The process therefore takes into account the provisions of the EIA regulations promulgated in terms of the NEMA (Act no. 107 of 1998) and relevant legislation.

METHODOLOGY (Matrix Risk):

Nature

The nature of the impact is herewith classified as either direct, indirect or cumulative.

- **Direct impacts:** impacts usually caused from activities carried out on site that can only be monitored to be carried out within certain confines but cannot at all be avoided, i.e. clearing of vegetation to mark a road reserve in an area populated with vegetation.
- **Indirect impacts:** secondary impacts resulting from direct impacts, i.e. erosion resulting from destabilised soils due to clearing of vegetation.
- **Cumulative impacts:** impacts which could result during the life cycle of the project as a result of one or two impacts that are usually unnoticed as single elements of such.

Intensity/ Magnitude

Encompasses three required (as per impact rating guide lines noted) aspects of identified impacts namely; the degree to which impacts can be reversed, the degree to which impacts may cause irreversible effects and the degree to which an impact can be mitigated. The impacts identified may be associated with the natural, social and cultural functions of the environment

Table: Rating Scale for Intensity of the Impact

Intensity of the Impact	Rating
Low (Impacts are reversible, mitigatable and replaceable by discontinued of the source of impact with no need to implement further mitigation measures)	1
Moderate (impacts are reversible, mitigatable and replaceable though moderate change the environment is identified with a loss of natural habitats. The natural habitat remains predominantly intact. Impacts can be restored by natural factors within 3-6 months)	2
High (The change in ecosystem processes and loss of natural habitat and biota is great, some remaining natural habitat features are still recognizable. Mitigation measures must be implemented within provided time frame by the ECO).	3
Very High (The modifications have reached a critical level and the ecosystem processes have been modified completely with an almost complete loss of natural habitat and biota. A rehabilitation plan must be drawn to reverse this impact, the consultation of relevant stake holders may be required).	4

Probability of Impacts

Table 3: Rating Scale for Probability of Impact

Probability of the Impact	Rating
Improbable (No chance of occurring)	1
Probable < 50% chance of occurring	2
High Probability 50 % ≥ 90 % chance of occurring	3
Definite > 90 % chance of occurring	4

Duration

Herewith the duration of the impact refers to the period into which the impact will be experienced i.e. short, medium and long term.

Table 1: Rating Scale for Duration the Impact

Duration of the Impact	Rating
Immediate < 1 year	1
Short 1>5 Years	2
Medium 5 ≥ 10 Years	3
Long > 10 Years	4

Extent

The extent is associated with the geographic extent of the impact, whereby if the occurrence of the impact will either have local, regional, National and globally negative impacts.

Table 2: Rating Scale for Extent of the Impact

<i>Extent of the Impact</i>	<i>Rating</i>
<i>Site Specific</i>	<i>1</i>
<i>Local 1 km ≥ 5 km</i>	<i>2</i>
<i>Regional 5 > 10 km from site</i>	<i>3</i>
<i>National/ Internally/Globally ≥ 10 from site</i>	<i>4</i>

Significance

The total significance = [(Magnitude+Extent+Duration) x Probability]: The following colours are primarily allocated for illustrative representation of each rating as per the degree of each rating; red for a severe significance, Yellow for a medium significance and green for low significance of effect.

Table 5: Rating Scale for significance of the impact of the Impact

Significance of the Impact	Consequence of Significance	Rating
Very Low	The impact is unimportant, and it requires not the mitigation. As such, the impact is regarded as acceptable for the proposed development.	<5
Low	The impact is very minor and may require limited mitigation. It may be regarded as accepted in light of the proposed mitigation.	5≥10
Medium (Medium-written black because of the colour barrier)	The impact is clearly effective but moderate and can be mitigated/ avoided by the implementation of proper mitigation measures.	10≥20
Moderate	The impact is clearly effective, failure to mitigate could lead to the entire project unacceptable.	20≥30
High	There are slim chances of mitigation measures.	30≥40
Very High	The impact is relatively high and there is no possible mitigation measure for this impact. As such, social, cultural and Economic activities of the community are disrupted.	>40

Result comment: summary of the result reflected under impacts after mitigation. The result comment must be considered reliable with the implementation of mitigation measures. NB//: A range of mitigation measures is provided; one or two measures may be required to mitigate a certain aspect.

AN ASSESSMENT OF EACH IDENTIFIED POTENTIAL SIGNIFICANT IMPACT AND RISK

Impact	Before /	Probability	Duration	Extent	Magnitude	Significance = [(Magnitude+Extent+Duration) x Probability]	Result Comment
Clearing of vegetation	Impact before mitigation	2	4	2	1	= (1+2+4) x 2 S= 14	Vegetation will be removed on phase; However, vegetation within the lineage of the road is mainly grass. The focus should therefore to limit vegetation clearing to the lineage of the road. The Moderate rating on the clearing of vegetation in terms of intensity is based on the fact that cleared vegetation will not grow back as the road will transverse over the cleared area. Having applied the provided mitigation measures the occurrence of the impact will not change, however occurrence will be confined to necessary areas, hence, the change in the difference with the rating.
	Impact after mitigation	1	4	1	1	= (1+1+4) x 1 S= 6	
Lack of safety and security	Impact before mitigation	4	3	4	4	= (4+4+3) x 4 S = 44	The public has been and will still be involved in the project so that there is fellowship between the project personnel and the community, this helps minimise any riots, theft, lawsuits, violence and notoriousness to the clients name. Provided that the mitigation measures are not implemented, fellowship may be threatened leading to disruption to the project and posing harm to the project personnel. A firm working relationship between the ECO, Safety Officer, Resident engineer, CLO and Project Managers will have to be maintained to ensure that the community works hand-in-hand with project personnel in order for the project to prevail.
	Impact after mitigation	1	1	1	1	= (1+1+1) x 1 S = 3	

Pollution of land	Impact before mitigation	4	3	2	3	= (3+2+3) X 4 S = 32	Though the impacts may be detrimental in severe cases of land pollution; considering that impacts will be have been allocated mitigation strategies as provided in this document (EMP and BAR) in the manner monitored by a qualified ECO, the impacts should be minimal and negligible.
	Impact after mitigation	2	1	1	1	= (1+1+1) x 2 S = 6	
Pollution on water	Impact before mitigation	3	3	3	3	= (3+3+3) x 3 S= 27	Watercourse systems are able to self-rehabilitate over time considering the contaminating agent is removed and the mitigation measures within this document are considered and monitored, the impacts after mitigation are foreseen to be insignificant. Close monitoring of the ECO is however recommended.
	Impact after mitigation	1	1	1	1	= (1+1+1) x 1 S= 3	
Erosion (bare soils)	Impact before mitigation	3	3	2	3	= (3+2+3) x 3 S= 24	Simple revegetation of the bare ground with deep rooted plants can help mend this impact. The soil can be watered mean while the plants are growing to avoid soil revision by wind. Areas requiring gabions will be identified with the ECO and those should be installed accordingly. Hardened surfaces must be excavated. Erosion mitigation must be applied and monitored as per recommendation within this application document.
	Impact after mitigation	1	1	1	1	= (1+1+1) x 1 S= 3	
Noise	Impact before mitigation	3	1	2	1	= (1+2+1) x 3 S = 12	The noise levels associated with the project applied for are not deemed too high, especially if mitigation measures are applied; even so, noise anticipated is inevitable but can only be

	Impact after mitigation	1	1	1	1	$= (1+1+1) \times 1$ $S = 3$	controlled and monitored to control it in case of unnecessary noise. Noise generated must emerge from construction vehicles and be limited to construction hours. (7:30am to 4:30pm)
Traffic	Impact before mitigation	2	1	1	2	$= (2+1+1) \times 2$ $S = 8$	Traffic flow will be slowed down as a result of the project. However, the severity of the impact is mostly dependent on the area. Stop and Goes will be used successfully along this road lineage and will be very effective due to the low traffic volumes in the area. The project is within a rural area where there is not much traffic.
	Impact after mitigation	1	1	1	1	$= (1+1+1) \times 1$ $S = 3$	
Dust	Impact before mitigation	4	1	2	1	$= (1+2+1) \times 4$ $S = 16$	Without mitigation measures dust will Dust suppression measures will be implemented with monitoring of the appointed ECO/ SHE officer. Mitigation include, but are not limited to; regular wetting of the road, stockpiled soils to be covered and /or wettened, controlling speed limits along the road, blasting is not envisioned and must not be engaged without notifying the ECO, grass clearing must be limited to areas of construction, etc. Dust suppression will have to be stringently monitored as the road is situated within a residential area. The proposed road is a gravel surfaced road, hence, when it is dry dust will be omitted from the surface of the road, provided the road is in a good state, the dust omitted will be of a minimal intensity.
	Impact after mitigation	2	1	1	1	$= (1+1+1) \times 2$ $S = 5$	

IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

SITE ALTERNATIVES

Alternative S1 (preferred alternative)

Direct impacts:

- The main significant impacts associated with planning and design phase on the basis of the site alternative are positive and these include;
 - Job creation and job allocation: jobs are allocated and are still to be allocated for professional skilled persons such as engineers, land surveyors and environmental practitioners and ECOs.

Indirect impacts:

- New knowledge is introduced to the interested and affected parties as they are involved in the public participation process i.e. interested and affected party;
 - This protects the people: creating awareness on the things that should not happen in developments, especially because the project is situated in a deep rural area. In such areas, people are usually manipulated for instance in some locations Wetlands have been ignored which have led to their contamination, awareness helps people to seek help from the government.

Cumulative impacts:

- Authorization and proper execution of projects such as this project will ultimately help restore trust of communities in the government, even communities adjacent to the receiving community.
- The ability of communities to trust authorities influences other aspects in such environments, i.e. crime: whenever communities lose their trust on the government, they tend to take matters into their own hands, which is forbidden by law in South Africa (however this is merely a small example of the benefits of such).

No-go alternative (compulsory)

Direct impacts:

- The no-go alternative would imply that the status quo on site would remain unaltered.

-
- It would also contribute to a great loss of capital as money has been spent in designing the project and other aspects on this phase as stated above.
 - The employment opportunities created for the community members in the planning and design phase would not be allocated to the number of people planned for, hence leaving the community helpless i.e., in terms of job opportunities (which is not the focus of the project, but beneficial to the community) and safe access routes.
 - Mostly importantly the no-go alternative would mean that the client is denied its efforts to provide safe access roads.

Indirect impacts:

- Loss of capital already invested by the client should it not be authorised.
- The community is involved in a number of public participation activities; hence, they are looking forward to the government's actions to improve their situation and ensure their safety.

Cumulative impacts:

- If community members are involved in public participation activities and are made to look forward to the government's proposals to improve their situation and ensure their safety after their complaints and then nothing is done, ultimately the community will resort to revolts as a means to getting the government to act in matters of the community. This could lead to more capital, lethal revolts and more disruption.

mitigation measures to manage the potential impacts listed above:

- The threats identified can be avoided by the Authorization of the project, even improving the situation of the community, in terms of economy and awareness.

PROCESS, TECHNOLOGY, LAYOUT OR OTHER ALTERNATIVES

Alternative A1 (preferred alternative)

Direct impacts:

- There are no anticipated significant negative impacts identified during the planning and design phase related to the process, technology, layout or other alternatives on site alternatives.

The chosen process and technology during this phase include taking water samples with small cups; taking soil samples i.e. through the use of tools such as AMS soil augers; taking measurements through measuring instruments, etc of which any negative effects on the environment are negligible and are only associated with investigation of site.

- The main significant impacts associated with this phase on the basis of the site are positive and these include: Job creation and allocation for professionally skilled persons such as engineers, land surveyors and environmental practitioners and also, job opportunities that have been created for low skilled persons will be allocated to them once the project is approved (through hiring).

Indirect impacts:

- New knowledge is introduced to the parties involved: people from the community are introduced to steps and process, technology, layout or other alternatives that are involved for a project to start and be authorized; This protects the people making them to be aware of the things which should not happen and those that should in developments, especially because the project is situated in a deep rural area and in such, people are usually manipulated because of the lack of knowledge.

Cumulative impacts:

- community members community are involved public participation activities and are made to look forward to the government's proposals to improve their situation and ensure their safety after their complaints and then nothing is done; ultimately, the community will resort to revolts as means to getting the government to act in matters of the community. This could lead to more capital, lethal revolts and more disruption.

No-go alternative (compulsory)

Direct impacts:

- Should the project not be authorised the positive impacts identified will not take effect and development potential will be nil and access to goods and services will be limited and dependant on weather as the situation is.
- It would also contribute to a great loss of capital already spent in designing and planning for the project.
- The local community will not have safe access to goods and services.
- The employment opportunities created for the community members in the planning and design phase will not be allocated to the number of people planned for.

Indirect impacts:

- The community is involved in a number of public participation activities; hence, they are looking forward to the government's actions to improve their situation and ensure their safety. Should the project not be authorized by the Department, this could lead to loss of trust on relying on the government by the community.

Cumulative impacts:

Should the project not be authorized by the Department Loss of income may result from i.e. community members who might revolt against poor development or service delivery.

mitigation measures to manage the potential impacts listed above:

The impacts identified above are positive and require no mitigation should the project be authorized.

There is need to address the effects that may result from the no-go alternative.

- This alternative would not only mean that the community is denied safety and security, but also personal empowerment through skills and capital.

IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

SITE ALTERNATIVES

Alternative S1 (preferred site)

Direct impacts:

- Removal of vegetation and exposure of soils. Mainly grass close to or at the watercourse area.
- Degradation of watercourse and quality from excavating or removal of materials.
- Materials and Substances may pollute the surface and/or ground on the site i.e. Substances such as cement residue, oils and fuel hence there's a possibility of water contamination
- traffic increases.
- The social status of the community will be improved through: -
 1. employment: allocation of the jobs created in the planning and design phase for the people of the community of the project through hiring.
 2. Skills.
 3. More business opportunities: People make use of opportunities such as renting out their toilet facilities to construction personnel through agreements.

Indirect impacts:

- Removal of riparian vegetation to facilitate construction may contribute to erosion of road verges, resulting in increased sediment loads to nearby watercourses.
- Bare soils are prone to wind erosion with associated generation of dust and windblown sand during high wind velocities.
- Increased traffic leads to being late and the overall time that people must do certain activities as opposed to their normal schedules.
- Clearing of vegetation decreases carbon dioxide absorption from the atmosphere and decreased air quality results.
- Soil compaction

Cumulative impacts:

- The bare soil area may be invaded by invasive and/or exotic species.
- Creation of economically proactive citizens from the community.
- Diseases associated with poor air quality (i.e. Asthma) may increase in close by community's overtime.
- Soil compaction increases will lead to increased run-off hence increased erosion effects.
- Decreased water quality with effects to all organism's dependent on the watercourses and any water resource linked to them.
- Continual alterations to the abiotic characteristics of the environment may affect the species within the environment i.e. reproduction, food sources etc, leading to species migration
- Species migration to more survivable environments.

No-go alternative (compulsory)

Direct Impacts:

- The positive impacts identified will not be implemented and development potential will be nil and access to goods and services will be limited and dependant on weather as the situation is.
- loss of capital already invested into the project by the Department of Transport.
- The local community will not have safe access to goods and services.
- The employment opportunities created for the community members in the planning and design phase will not be allocated to the number of people planned for.
- Flooding of the road during peak rainfall due to lack of proper stormwater management.

Indirect impacts:

- Should the project not be authorized, the situation of the community will remain the same, meaning that people's lives may be lost during high rainfall.

Cumulative impacts:

- Should the project not be authorized by the Department Loss of capital may result from i.e. community members who might revolt against poor development or service delivery.

mitigation measures to manage the potential impacts listed above:

- Appointment of an ECO to monitor compliance with the EMPr implemented for the project
- Erosion can be minimized by ensuring that construction activities are confined to disturbed areas of the river banks
- Post construction phase, the disturbed areas must be rehabilitated by stabilizing the banks with gabions or geotextiles to ensure regrowth of riparian vegetation. On-going monitoring is required until recovery of such.
- The installation of piped culverts to ensure continuation of on phase small streams is imperative.
- The disturbed areas must be planted with deep rooted vegetation to stabilize the banks, provide shade to control the water temperature and provide habitat and food.
- To avoid soil and water contamination in cases where the machine being used are faulty, the contractor will have to make sure of the following:
 - Provision of drip trays all the time onsite
 - Placing of generators over the drip tray
 - Avoid soil erosion by ensuring that rehabilitation/landscaping in all areas where construction is taking place.
 - Provision of waste bins to avoid pollution by means of waste and use of chemical abluion.

PROCESS, TECHNOLOGY, LAYOUT OR OTHER ALTERNATIVES

Alternative A1 (preferred alternative)

Direct impacts:

- Excavation activities with removal of vegetation and exposure of soils
- Materials and Substances may pollute the surface and/or ground water on the site i.e. Substances such as cement residue, oils and fuel hence there's a possibility of water contamination
- traffic increases.
- Construction activities are generally associated with a greater than normal level of noise and disturbance.
- Some of the activities which could constitute a noise nuisance during construction are power tools, driving, loading and off-loading, vehicle hooters and reverse sirens. This impact is specifically important in this development because of the proximity to the neighbouring residential properties.
- traffic will be generated i.e. the delivery of construction supplies, staff and equipment. Traffic impact would of short duration as it would be restricted to the improvement period. After the proposed improvement the traffic flow will be generally improved.
- Substances such as cement residue is especially important and must be adequately controlled.
- contamination with oils from the machines used and vehicles during construction.
- Degradation of stream and water quality from excavating or removal of sand can increase sediment load and turbidity downstream which may degrade the quality of domestic and livestock water supply.

-
- Continued employment for contractors completing work within the surrounding area.
 - There is potential for construction labour to trespass onto neighbouring properties; and
 - Construction personnel / construction vehicles – movement of construction personnel and vehicles may pose a potential health and safety risk to road users and local residents.

Indirect impacts:

- Exposed surfaces during construction would provide a source of sediments to be taken up by storm water resulting in downstream sedimentation of the water resources.
- Areas of unconsolidated soil due to removed vegetation will be present. These soils will be prone to wind erosion with associated generation of dust and windblown sand during high wind velocities.
- Health issues such cholera, asthma, diarrheal due to negligence from the persons working on site i.e. causing water contamination of drinking water; inhaling of fumes.
- Injuries by communities as the result of unsafe keeping of working areas.
- The site has already been cleared from vegetation and this bare soil area may be prone to the invasion and establishment of invasive and/or exotic species.
- Impact of Construction Camp: Construction camps might further contribute to possible indirect impacts due to the possible fuel spillage, and erosion due to various activities and movements of construction vehicles. Spillage may lead to contamination of soil and adjacent water bodies.
- Impact on Borrow pits: it might be necessary to obtain additional fill material from borrow pits and should be obtained from existing borrow pits to reduce the impacts that the creation of new borrow pits will have on the environment.
- Surface water run-off contamination: An increase in traffic will contribute to an increase in contamination of roadside soils due to particulates from tyres, brake and road wear, petrochemical products leaking from vehicles.
- Creation of an economically proactive community.

Cumulative impacts:

- Impact of removal of riparian vegetation: Removal of riparian vegetation to facilitate construction could contribute to erosion of road verges, resulting in increased sediment loads to nearby watercourses. Uncontrolled/ managed pollution could ultimately lead to the contamination of the area and adjacent areas
- Invasion and establishment of alien and/or invasive vegetation.

No-go alternative (compulsory)

Direct Impacts

- None of the impacts identified for the proposed activity will occur (including positive and negative impacts) if the proposed activity does not proceed. There would be inefficiency by continuing to use the culvert in the phase and the transport problem being experienced currently will not be addressed. In addition, road safety risks associated with the use of the culvert in the phase would continue.

Indirect impacts:

- The community is involved in a number of public participation activities; hence, they are looking forward to the government's actions to improve their situation and ensure their safety. Should the construction activities not be carried out by the Department, this could lead to loss of trust on relying on the government by the community.

Cumulative impacts:

- Should the project not be authorized by the Department Loss of income may result from i.e. community members who might revolt against poor development or service delivery.

mitigation measures to manage the potential impacts listed above:

- Concrete and/or cement will not be mixed directly on the ground but will be mixed offsite or on a mortar board. Visible remains of concrete as a result of construction will be physically removed and disposed of as building wastes.
- To avoid soil and water contamination in cases where the machine being used are faulty, the contractor will have to make sure of the following:
 - Provision of drip trays all the time onsite
 - Placing of generators over the drip tray
- Maintenance done on construction vehicles must be done in such a manner to prevent spillage of fuel and oils.
- After the completion of construction, any possible soil compaction and spillage of substances within the construction camp must be rehabilitated.
- Use of soft engineering solutions in connection with surfacing of the arrears not developed for vehicle parking within campsite. This will allow percolation and seepage of water into the ground without being contaminated with any oils or other negative effects.
- Use construction waste as fill material where possible
- Obtain fill material from road reserve to minimize the impact of creating new borrow pits.
- Limit construction activities, as far as practically possible, to normal working hours, i.e. 7am to 5pm weekdays.
- Should work take place after hours, nearby residents should be notified. Signage with the contact details of the responsible person should be provided at the site for residents with complaints in this regard.

- A complaints register should be kept to document complaints and the corrective action taken. No loud music to be allowed on site.
- Ear plugs need to be provided for persons operating machinery that emits excessive noise.
- All reasonable precautions will be taken to minimize noise generated on site i.e. construction vehicles will be kept in good working order so as not to generate excessive noise and avoid spillages of fuels.
- The contractor will minimise the use of sound amplification equipment on site.
- Activities which will lead to excessive noise near residential areas, will be limited to take place during the day.
- Schedule the construction process to limit obstruction to traffic flows during peak traffic hours.
- Should erosion scars begin to form on the landscape, erosion counter measures should be implemented immediately.
- Re-enforce river banks with gabions where applicable to prevent instability of the river banks.
- Restrict disturbance to riparian areas to as close as practically possible to the proposed project sites' footprint. Areas outside of the footprint and reasonable construction access to be marked as no-go areas.
- On completion of the construction all exposed soil must be revegetated, preferably with indigenous vegetation.
- Implementation of erosion control measures where applicable
- Re-vegetate and rehabilitate after construction
- Where possible limit the removal of riparian vegetation.
- The culverts must span the river system so as to cause minimal impact to the river and to alleviate further flooding.
- Erosion can be minimized by ensuring that construction activities are confined to disturbed areas of the river banks
- Post construction phase, the disturbed areas will be rehabilitated by stabilizing the banks with gabions or geotextiles to ensure regrowth of riparian vegetation. On-going monitoring will be implemented.
- Vegetation removed will be replaced post construction phase.
- Proper storm water management plan to address the issue of storm water will be implemented for the areas that require it to avoid run-off that could cause further erosive effects.
- Immediate revegetation of all bare soil areas must take place. The species utilized must be determined by a suitably qualified specialist. Where possible, storm water must be conveyed through grassed swales rather than concrete channels to aid infiltration and reduce run-off
- The disturbed areas will be revegetated with deep rooted vegetation to stabilise the banks, provide shade to control the water temperature and provide habitat and food
- Berms and/or drainage channels must be constructed around all infrastructures and must be checked regularly for any structural damage or blockages.
- Topsoil should be cleared in a phased manner to avoid large areas of unconsolidated soils.
- During construction adequate dust suppression techniques must be implemented including but not limited to: regular wetting of exposed soil and stockpiles; use of dust retardant sprays; and where applicable covering of soil stockpiles.
- Soil stockpiles should be covered, wetted or otherwise stabilized to prevent wind erosion and dust generation.
- A water cart or sufficient watering equipment should be available to wet soils during windy days if wind-blown sand and dust becomes a problem.
- Speed limits on the access road should be limited to 30 km/h and strictly enforced to control dust.

-
- Topsoil should be removed and stockpiled in an appropriate manner: Stockpiled separately from subsoil, monitored for- and protected from erosion and kept clear from exotic vegetation
 - Re-vegetated areas should be watered until vegetation has become established.
 - Site offices, storage area, construction areas, material lay-down areas, access routes, infrastructure footprints and No-Go areas should be clearly demarcated.
 - No construction workers are permitted to be accommodated overnight on the site or in the site construction camp except for security personnel. Any construction personnel found to be trespassing must be subjected to a disciplinary hearing;
 - Construction workers / construction vehicles should take heed of normal road safety regulations; thus, all personnel must obey and respect the law of the road. A courteous and respectful driving manner should be enforced and maintained so as not to cause harm to any individual; and
 - A designated speed limit should be set by the developer to limit possible road strikes.
 - Construction camp should be erected where it will have the least environmental impacts.
 - All construction activities should be limited to the demarcated area.
 - Access to the demarcated construction area should be strictly controlled
 - Entry points and access routes to the site must be clearly marked and traffic limited to those areas.
 - Suitable information and warning signage should be erected before construction commences.
 - Speed travelled by vehicles must be kept to a minimum and speed limits enforced.
 - Ensure that there is a first aid facility and trained first aiders at the site
 - Energy of the water course can be mitigated by conducting the constructing activity in phases i.e. work on a particular segment of the river whilst diverting the water to the active part of the river to ensure that the flow of the water be similar to that of the river current so as not to cause deposition of sediment.
 - It is imperative that the construction occur during the dry season to lessen the impacts.
 - The flow of water in the river will be diverted to within the river so that downstream users have access to water for sustenance. The flow of water will be diverted into a properly designed and constructed channel that has been stabilised.
 - Due to construction occurring in the dry season, the turbidity of the river system will be able to accommodate the diverted water with minimum impact to the river bed and the aquatic environment or cause erosion to the banks.
 - The gradient of the area surrounding the proposed footprint for development is fairly flat as such, the stream power will be negligible during the dry season which would not cause significant changes to the morphology of the river or its aquatic habitat.
 - The alterations to the physical characteristics of the river must be kept to a minimum.
 - Fluvial processes in the river are crucial to the distribution of vital gases, nutrients and small organisms so the flow of the river to downstream users must not be stopped.
 - Rivers are dynamic systems in that they are continuously adjusting to changes in discharge and sediment load. The river will revert to its natural function post construction and fulfil its intended role.
 - Use of chemical ablation facilities will be implemented
 - Provision of waste bins to avoid pollution by means of waste
 - Appointment of an ECO
 - Ensure efficient scheduling for the delivery of asphalt

-
- appointed contractors must immediately arrange to collect and suitably dispose of dumped asphalt.
 - Areas where dumping occurs need to be rehabilitated to their original (pre-dumping) conditions.
 - Monitoring contamination/ pollution of the water resource will include conducting monthly water quality tests upstream, at source and downstream of the construction activity. This will be done on a monthly basis and 3 months post construction. This will ensure that the increase in sediment load and turbidity downstream does not affect the quality of the water.
 - Close monitoring of the site by qualified Environmental Control Officer to ensure that the proposed development has a minimal impact on the receiving environment.
 - Evaluation of designs and provide recommendations to limit and reduce environmental, social and economic impacts associated with the proposed activities will be implemented to ensure impacts are kept to a minimum.

IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

SITE ALTERNATIVES

Alternative S1 (preferred alternative)

Direct impacts:

- Water contamination as a result of road use by vehicles, which are not roadworthy, that leaks oils, which could be washed down to the river during rainy days.
- Destabilization of banks by cattle near river, as this area may be prone to an increase in residents for accessibility to transport.
- Safe access to goods and services and public transport in rainy weather

Indirect impacts:

- Human health from communities downstream might be negatively affected provided contamination is not prevented.

Cumulative impacts:

- Unsafe drinking water from the adjacent or adjacent river systems.

No-go alternative (compulsory)

- **Direct impacts:**

N/A

- **Indirect impacts:**

N/A

- **Cumulative impacts:**

N/A

mitigation measures to manage the potential impacts listed above:

Implementation of all the mitigation and monitoring measures outlined and contained in this Document, including the EMP and; -

- Ongoing maintenance of the project site during and after completion to ensure that it is safe, and people must be made aware of the dangers of dumping waste within their water resources.
- If excessive spillage of oil and fuel etc., should occur due to accidents, it should be cleaned up immediately
- Regular monitoring and maintenance of the road to ensure that foreign items are collected and suitably disposed of e.g. collection and disposal of spent rethreads and other debris.
- Monitoring the rehabilitated area to ensure that vegetation grows, and the area rehabilitated is compact and cannot any stage collapse.

PROCESS, TECHNOLOGY, LAYOUT OR OTHER ALTERNATIVES

Alternative A1 (preferred alternative)

Direct impacts: Not applicable: there is no technology that will be put to use for the project to operate, impacts will result only from the site locality, due to the fact that the project proposed allows vehicle route access over the water course. Therefore people may dump waste, etc., as mentioned above.

Indirect impacts: N/A

Cumulative impacts: N/A

No-go alternative (compulsory)

Direct impacts: Not anticipated during this phase

Indirect impacts: Not anticipated during this phase

Cumulative impacts: Not anticipated during this phase

mitigation measures to manage the potential impacts listed above:

- N/A

IMPACTS THAT MAY RESULT FROM THE CLOSURE OR DECOMMISSIONING PHASE

Decommissioning is not envisioned. However, the objective of providing guidelines during the closure phase is to prevent structures from being left to deteriorate, look unsightly and to cause harm to the environment. It is imperative that non-functional structures be removed as soon as possible, and that the site is rehabilitated as soon as possible. If non-functional structures are not needed anymore, and not removed, it must be maintained that they will be used to prevent the environmental degradation of the site.

The Contractor is to outline a method statement for the dealing with accidents / spillages of hazardous materials. This statement must be handed to the Engineer as well as ECO.

The contractor must include these aspects when compiling their method statement for closure and rehabilitation: -

- Contractor must ensure that all side and mitre drain, V Drains and scour check walls as well on access and haul roads are functioning properly and are well maintained.
- The construction area must be cleared of litter, debris (e.g. Cement packets, bitumen residues etc.) and other domestic waste on completion of the day's work.
- All litter throughout the site must be picked up on a daily basis and placed in the bins provided with waste to be separated according to type of waste.
- Excavated soil and other material must be deposited in a spoil area as agreed with ECO and engineer.
- All exposed earth must be rehabilitated promptly with suitable vegetation to protect the soil.
- Storm water control and wind screening must be undertaken to prevent soil erosion on site.
- There must be no offsite impacts of storm water. A general rule is that the storm water velocity eddies on the site must be the same as the predevelopment area.
- If cut and fill earthworks are required, these must be limited to the minimum necessary. Cut and fill banks must not be sloped steeper than 1: 1.5. All fill must be well compacted in layers on placement and must not be loose end-tipped. No cut or fill slope must exceed 2.5 m vertical height. All earthworks must be vegetated as soon after completion of construction as is practically possible with locally sourced indigenous vegetation where possible.
- Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality. i.e., All embankments, unless otherwise directed by the Engineer, must be protected by a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.
- The Department of Water Affairs and the ECO as well as other emergency contact numbers provided by the Municipality must be contacted in order to deal with spillages and contamination.
- Every effort must be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site.

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- No machinery may be left standing within the watercourse area.
 - Movement of machinery and workers within the watercourses must be monitored and limited.
 - No waste may be dumped into the affected watercourses.
 - Vegetation that is removed is to be replanted and excavation is to be kept to a minimum.
 - Immediate re-vegetation of stripped areas and removal of aliens by weeding must take place.
 - In the event of infilling, replacement of subsoil must precede the topsoil replacement, and all material must be well compacted.
 - All empty containers must be removed from the site for appropriate disposal at a licensed facility and must be treated as hazardous waste.
 - Hazardous substances / materials are to be transported in sealed containers or bags.
 - Regular communication between the Contractor and the IAPs is important for the duration of the contract.
 - Waste from chemical toilets must be disposed of regularly and in a responsible manner by a registered waste contractor. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas.
 - Contaminated water associated with construction activities must be contained in separate areas with berms and must not be allowed to enter into the natural drainage system.
 - Soil that is contaminated with, e.g. cement, bitumen, petrochemicals or paint must be disposed of at a registered hazardous landfill site.
 - Contractors activities and movement of staff is to be restricted to designated construction areas.
 - Should the construction staff be approached by members of the public or other stakeholders, they must assist them in locating the Engineer or Contractor or provide a number on which they may contact the Engineer or Contractor.
 - Disruption of access for local residents must be minimised and must have the consent of the Engineer.
 - The Contractor is to inform neighbours in writing of disruptive activities at least 24 hrs beforehand.
 - The site must be kept clean to minimize the visual impact of the site.
 - Notice of particularly noisy activities must be given to residents adjacent to the construction site. Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.

Queries and complaints are to be handled by:

- documenting details of such communications;
- submitting these for inclusion in the complaints register;
- bringing issues to the Engineers attention immediately;
- taking remedial action as per Engineer's instruction.

SECTION H

SUMMARY OF FINDINGS AND IMPACT MANAGEMENT BY SPECIALIST REPORT (Appendix 6)

SUMMARY OF FINDINGS

Wetland Assessment:

The Biodiversity Company was commissioned to conduct a wetland assessment, as part of the environmental authorisation process and Water Use Licence Application (WULA) for the proposed upgrade of Mbilane Road and the construction of two causeway structures in the Mbewunye area within the Nquthu Local Municipality, KwaZulu-Natal. A site visit was conducted during the week of 17th September 2018.

The causeway structures will be constructed within the boundaries of the drainage lines, which, as a result, will be directly impacted on. As this project entails the upgrade of infrastructure and the construction of new infrastructure, impacts associated with the area are potentially moderate to low, based on the current onsite crossings (Figure 9, Wetland assessment). Modifications to the watercourses' habitats is likely to occur during construction.

The Moderate risks identified for the construction phase of the project are associated with changes in drainage from the watercourses through channelling or compaction. The increase bare/impervious areas will increase the sediment loads carried down slope into downstream watercourse areas. The moderate risks associated with the construction phase were readjusted to Low ratings with the anticipation that all the prescribed mitigation measures will be implemented.

IMPACT MANAGEMENT MEASURES FROM SPECIALIST REPORTS

WETLAND ASSESSMENT:

Road and causeway construction mitigation measures (Wetland Assessment, 7.1., page 23).

The following causeway construction specific mitigation measures are provided:

- The footprint area of the construction should be kept a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas;
- All construction activities and access must make use of the existing road;
- Batching plants must be allocated outside of the 15m buffer zones;
- Culverts are to be placed during the dry season;
- Exposed road surfaces awaiting grading must be stabilised to prevent the erosion of these surfaces. Signs of erosion must be addressed immediately to prevent further erosion of the road;

-
- Silt traps and fences must be placed in the preferential flow paths along the road to prevent sedimentation of the watercourse;
 - Temporary storm water channels should be filled with aggregate and/or logs (branches included) to dissipate flows;
 - The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly;
 - It is recommended that the material surrounding and holding the culverts in place include a coarse rock layer that has been specifically incorporated to increase the porosity and permeability to accommodate flooding and very low flows;
 - The culverts used in the design should be as large as possible, partially sunken and energy dissipating material must be placed at the discharge area of each culvert to prevent erosion of these areas;
 - Large aggregate outsourced or from the project area (if available) can be used for energy dissipation in the channel downstream of the culverts to reduce the likelihood of scouring the river bed and sedimentation of the catchment. It is preferable that larger aggregate be used to avoid flows removing material from the site;
 - The use of larger culverts will prevent the build-up of debris by allowing the free movement of debris through the large culverts;
 - Culverts should avoid inundation (damming) of upstream areas by facilitating streamflow and catering properly for both low flows and high flows;
 - Surface run-off from the roads flowing down the embankments often scours the watercourse on the sides of the culvert causing sedimentation of the channel. This should be catered for with adequate concreted storm water drainage depressions and channels with energy dissipaters that channel these flows into the river in a controlled manner;
 - The culvert installations should further take into account the scouring action of high flows and gabion structures or similar should be placed on both sides of the culvert on the embankments both upstream and downstream. This will serve as retention of the soils from scouring around and underneath the culvert structures aiding in the protection of the structure; and
 - A suitable storm water plan must be compiled for the road. This plan must attempt to displace and divert storm water from the road and discharge the water into adjacent areas without eroding the receiving areas. It is preferable that run-off velocities be reduced with energy dissipaters and flows discharged into the local watercourses.

ENVIRONMENTAL IMPACT STATEMENT

Summary of findings

Alternative S1 (preferred site)

It is the opinion of the EAP that the project be considered and allow for the proposed road upgrade and causeway structure construction associated with the Mbilane Road to proceed since the impacts associated with project are moderate as the road exists, but all prescribed mitigation measures and recommendations must be implemented.

Alternative A1 (preferred alternative)

The main impacts that were identified during the four phases of the development (planning and design phase, construction phase, operational phase, and the decommissioning or closure phase), whether it be direct, indirect or cumulative, all occur on main spheres; the land, water and air. All the impacts that were identified have been addressed in the best feasible ways, the implementation of the mitigation measures contemplated herewith are aimed and complete obliteration of such or mitigation to the most minimal state. The main issues identified are due to the location of the site, the technology and procedures and the nature of the project. The application of strict environmental principles in ensuring safe keeping of the environment is vital and adherence to the approved EMP. The approval of the proposed development as proposed by the Client as it is of vital importance for the socio-economic status of the surrounding communities.

No-go alternative (compulsory)

The disapproval of this proposed development will not only affect the department's target of service delivery but will affect the communities' socio-economic status i.e. jobs to be created.

SECTION I

RECORDING OF THE PROPOSED IMPACT MANAGEMENT OBJECTIVES

The objectives of the proposed impact management objectives are outlined and contained within this document and the EMPr which is attached within Annexure E of this document. The main objective is to promote sustainable development, therefore comply with the legislative framework around sound development with regards to legislated environmental practice. The EMPr highlights that p.6:

In accordance with the Integrated Environmental Management Guidelines published by the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) in 2014, the purpose of an Environmental Management Programme (EMPr) is *“to describe how negative environmental impacts will be managed, rehabilitated, monitored and how positive impacts will be maximized”*.

The EMPr will serve as a guideline with the specific objectives to:

1. Provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site.
2. Ensure that the construction and operational phases of the project continues within the principles of Integrated Environmental Management.
3. Detail specific actions deemed necessary to assist in mitigating the environmental impact of the project.
4. Ensure that the safety recommendations are complied with.
5. Provide feedback for the continuous improvement in environmental performance.
6. Serve as a framework for the acceptable implementation of environmental and social initiatives.
7. Be able to stand as a structure which addresses the relevant concerns of the public regarding the development.

SECTION J

IMPACT MANAGEMENT OUTCOMES FOR THE DEVELOPMENT, FOR INCLUSION IN THE EMPr

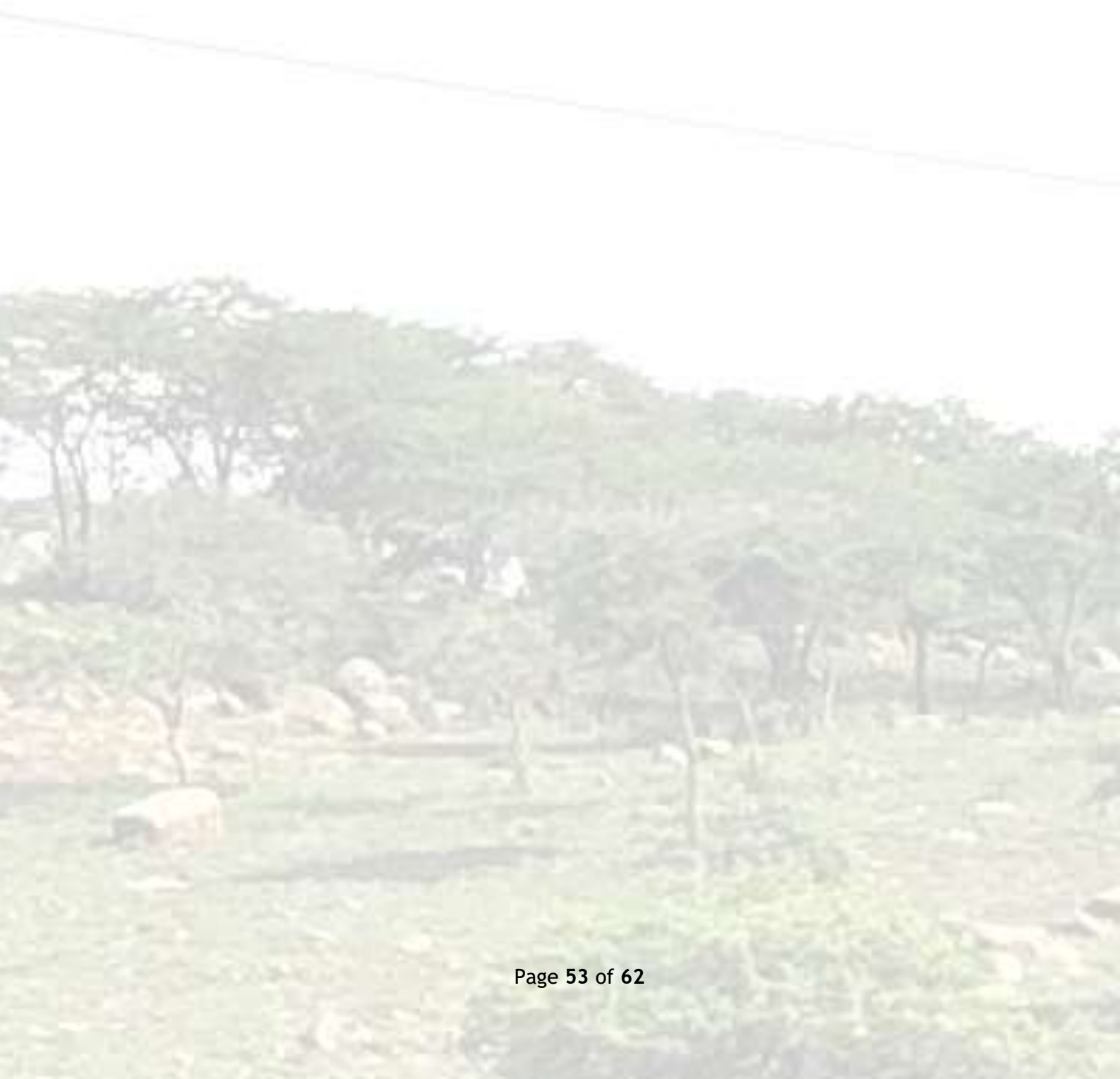
The following have been noted for inclusion within the mitigation measures for implementation during construction and closure phases of the project (included within the final EMPr): -

- All litter throughout the site must be picked up on a daily basis and placed in the bins provided with waste to be separated according to type of waste.
- Excavated soil and other material must be deposited in a spoil area as agreed with ECO and engineer.
- All exposed earth must be rehabilitated promptly with suitable vegetation to protect the soil.
- Storm water control and wind screening must be undertaken to prevent soil erosion on site.
- If cut and fill earthworks are required, these must be limited to the minimum necessary.
- Cut and fill banks must not be sloped steeper than 1: 1.5. All fill must be well compacted in layers on placement and must not be loose end-tipped.
- No cut or fill slope must exceed 2.5 m vertical height.
- All earthworks must be vegetated as soon after completion of construction as is practically possible with locally sourced indigenous vegetation where possible.
- The Contractor must not in any way modify nor damage the banks or beds of streams, rivers, other open water bodies and drainage lines adjacent to or within the designated area, unless required as part of the construction project specification. Where such disturbance is unavoidable approval must be obtained from the ECO.
- Water quality is affected by the incorrect handling of substances and materials: Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality. i.e. All embankments, unless otherwise directed by the Engineer, must be protected by a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.
- Every effort must be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site.
- No machinery may be left standing within the watercourse area.
- Movement of machinery and workers within the watercourses must be monitored and limited.
- No waste may be dumped into the affected watercourses.
- Vegetation that is removed is to be replanted and excavation is to be kept to a minimum.
- Immediate re-vegetation of stripped areas and removal of aliens by weeding must take place.
- In the event of infilling, replacement of subsoil must precede the topsoil replacement, and all material must be well compacted.
- The site must be kept clean to minimize the visual impact of the site.
- Notice of particularly noisy activities must be given to residents adjacent to the construction site. Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.

SECTION K

POTENTIAL ASPECTS RELEVANT TO FINDINGS OF ASSESSMENT BY EAP &/ OR SPECIALIST

- N/A



SECTION L

DESCRIPTION OF ASSUMPTIONS, UNCERTAINTIES, AND GAPS

The main limitation is that most scientific methods are developed based on studies conducted in controlled systems/ environments hence it is impractical to apply scientific methods in an open system. However, the experience in the field has enabled the EAP to draw more precise assumptions and conclusions on the project, by including various sources and desktop analysis to produce the outlined findings within the study.

This report is based on information supplied by the Client and on-site assessment undertaken. As such, all information is given in good faith, however, no physical testing or chemical analyses were performed during the course of this assessment. Although every effort is made to request and obtain all specific information the EAP cannot be held accountable or accept responsibility for any misconduct or changes done after the specific site visits and scope of works upon approval of the scope of works assessed within this document. All reports sourced by the consultant for use have been referenced.

SECTION M

CONSTRUCTION METHOD STATEMENT AND REHABILITATION

CONTRACTOR'S GENERIC METHOD STATEMENT.

- A contractor has not been appointed as of yet, however the method statement will be Once the contractor has been appointed.

REHABILITATION

A rehabilitation plan will be drawn based on the method statement and will be amended as the project progresses. The rehabilitation plan Must be submitted to the Department prior the commencement of rehabilitation.

SECTION N

DETAILS OF FINANCIAL PROVISIONS FOR REHABILITATION, CLOSURE, AND ONGOING POST DECOMMISSIONING MANAGEMENT OF NEGATIVE ENVIRONMENTAL IMPACTS

- To be supplied once the contractor has been appointed, once the project has been Authorized.

SECTION 0

EAP RECOMMENDATIONS AND UNDERTAKING

RECOMMENDATIONS

Planning and design phase:

- Careful consideration of the Environmental Management Programme (EMPr)
- Appointment of Environmental Control Officer (ECO).
- ECO to review proposed project scope against Environmental Authorization by DEDTEA.
- Further to this: - *Careful planning of the construction camp can ensure that time and costs associated with environmental management and rehabilitation is reduced*

Construction Camp Site Establishment, setup and management

- a) The camp site must be located on the previously disturbed site
- b) The Contractor must obtain permission from the landowner to be establish the Construction Camp site.
- c) The construction camp must be located a distance of at least 100 m from the edge of delineated watercourses and be outside of the 100-year flood line.
- d) Adequate parking must be provided for site staff and visitors.
- e) The construction camp must be properly fenced and secured with a 1.8 m high bonnox (or similar type) fence and locked after construction hours. It must be kept in a clean and orderly state at all times.
- f) The Contractor must attend to, monitor and manage the drainage of the campsite to avoid sheet erosion and / or standing water. Run-off from the camp site must not discharge into neighbouring properties.
- g) Storing of refuse outside of the camp site is prohibited

Construction phase:

- Induction to all construction personnel on contents of EMPr and environmental authorization and compliance and penalties associated there to.
- Advice on what to do with waste being produced on site by allowing such waste to be disposed of at a registered landfill sites

The following to be monitored by ECO during construction:

- Control of dust especially in areas that are in close proximity to residential areas
- Cleaning of spillages immediately'

-
- Demarcation of sites for no go areas
 - Demarcation of construction sites and prevent public access to these areas
 - Monitor complaints, investigate and implement rectifying measures
 - Monitor areas for pollution and degradation.
 - Monthly audit report to be produced.

Operational phase:

Monitoring post construction will be implemented during the first three months to ensure that all necessary rehabilitation strategies are implemented, this monitoring will cross over to the operational phase of the project. No specified monitoring on basis of environmental impact assessment will be carried out for the operational phase by the ECO is expected.

Decommissioning phase or Closure phase:

The contractor must take into consideration these aspects when compiling their method statement for closure and rehabilitation: -

ROAD MAINTNANCE

- Contractor must ensure that all side and mitre drain, V Drains and scour check walls as well on access and haul roads are functioning properly and are well maintained.
- The construction area must be cleared of litter, debris (e.g. Cement packets, bitumen residues etc.) and other domestic waste on completion of the day's work.
- All litter throughout the site must be picked up on a daily basis and placed in the bins provided with waste to be separated according to type of waste.
- Excavated soil and other material must be deposited in a spoil area as agreed with ECO and engineer.
- All embankments, unless otherwise directed by the Engineer, must be protected by a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.
- All exposed earth must be rehabilitated promptly with suitable vegetation to protect the soil.

EROSION CONTROL

- Storm water control and wind screening must be undertaken to prevent soil erosion on site.
- There must be no offsite impacts of storm water.
- Cut and fill banks must not be sloped steeper than 1: 1.5.
- All fill must be well compacted in layers on placement and must not be loose end-tipped.
- No cut or fill slope must exceed 2.5 m vertical height.
- All earthworks must be vegetated as soon after completion of construction as is practically possible with locally sourced indigenous vegetation where possible.
- If cut and fill earthworks are required, these must be limited to the minimum necessary

TO PREVENT DAMAGE TO WATER RESOURCES

- The Department of Water Affairs and the ECO as well as other emergency contact numbers provided by the Municipality must be contacted in order to deal with spillages and contamination.
- Effort must be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site.
- No machinery may be left standing within the watercourse area.
- Movement of machinery and workers within the watercourses must be monitored and limited.
- No waste may be dumped into the affected watercourses.

GO GREEN OR GO HOME

- Vegetation that is removed is to be replanted and excavation is to be kept to a minimum.
- Immediate re-vegetation of stripped areas and removal of aliens by weeding must take place.
- In the event of infilling, replacement of subsoil must precede the topsoil replacement, and all material must be well compacted.

TO MAINTAIN THE WORKSHOP

- All empty containers must be removed from the site for appropriate disposal at a licensed facility and must be treated as hazardous waste.
- Hazardous substances / materials are to be transported in sealed containers or bags.
- Regular communication between the Contractor and the IAPs is important for the duration of the contract.
- Waste from chemical toilets must be disposed of regularly and in a responsible manner by a registered waste contractor.
- Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas.
- Contaminated water associated with construction activities must be contained in separate areas with berms and must not be allowed to enter into the natural drainage system.
- Soil that is contaminated with, e.g. cement, bitumen, petrochemicals or paint must be disposed of at a registered hazardous landfill site.
- Contractors activities and movement of staff is to be restricted to designated construction areas.
- Should the construction staff be approached by members of the public or other stakeholders, they must assist them in locating the Engineer or Contractor or provide a number on which they may contact the Engineer or Contractor.

TO MAINTAIN A GOOD RELATIONSHIP WITH THE COMMUNITY

- Disruption of access for local residents must be minimized and must have the consent of the Engineer.
- The Contractor is to inform neighbours in writing of disruptive activities at least 24 hrs beforehand.
- The site must be kept clean to minimize the visual impact of the site.
- Notice of particularly noisy activities must be given to residents adjacent to the construction site.
- Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.

EAP UNDERTAKING AND DECLARATION

I,.....hereby approve that the drafted report as in terms of EIA Regulations, 2014 as prescribed in terms of S22(2) in relation to conduct and eligibility, hereby acknowledge that the information hereby presented as in terms prescribed in the said regulations is at all cost correct and is aligned to proposed development as per proposal by the applicant (often referred to as client). The presentation presented in this document is by no means compromise the site physical aspect of the environmental features so to make the proposed development approvable. However, our assessment is based on true ground assessment and literature review, and practical consultation with all stakeholders as prescribed in the process procedure as in Chapter 6, S40 (1) (2) and or S41.

The Competent Authority (CA) has by law vested interest in the protection of the environmental aspect hence the decision is always based on the provided information and if all has been aligned to EIA Regulations, 2014 inclusive of other relevant legislation as contained in the latter pages of this document.

Signed at _____ on _____ of _____ 20_____

Signature: _____ Capacity: _____

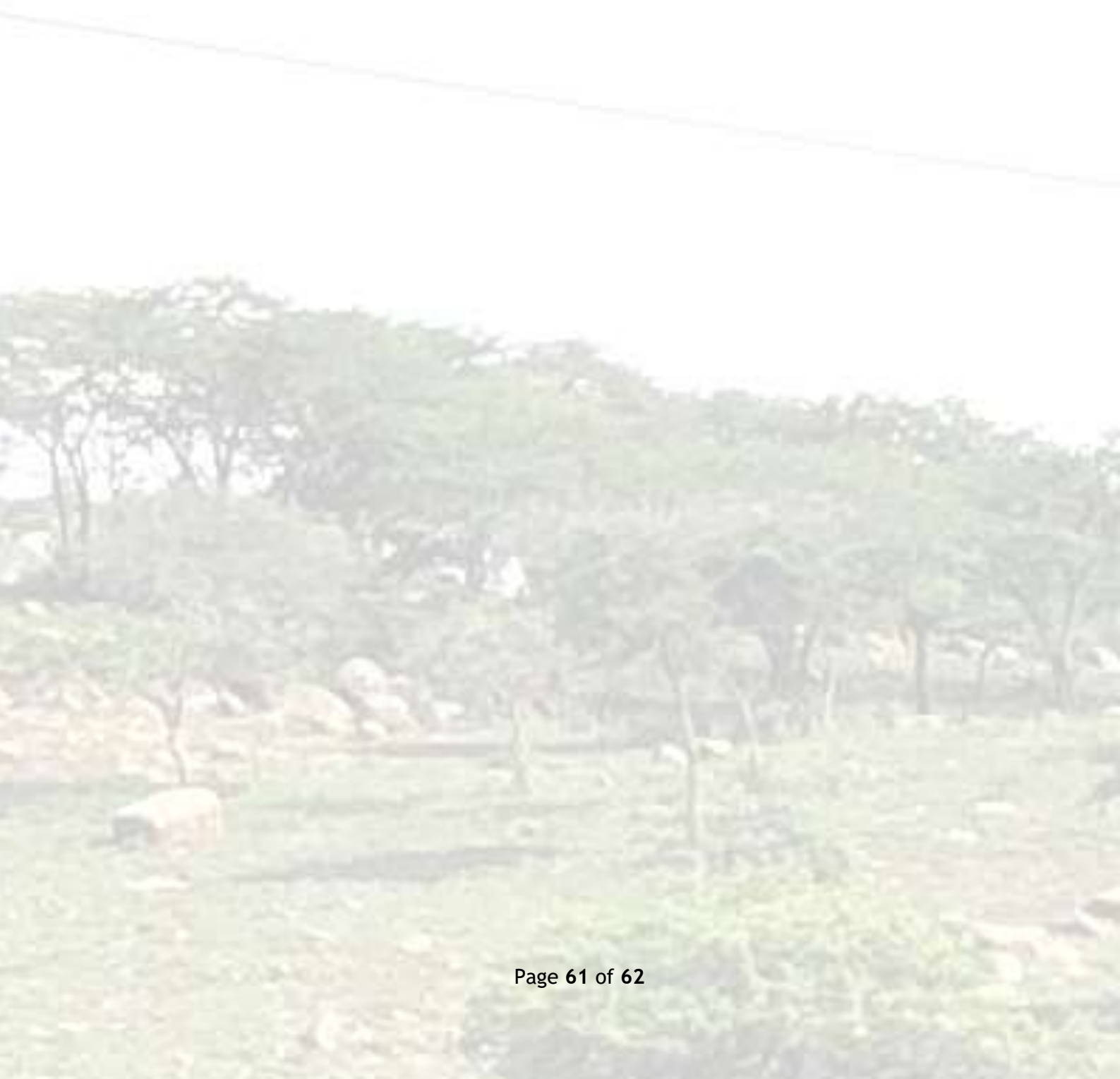
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SECTION P

OTHER RELEVANT INFORMATION FOR COMPETENT AUTHORITY

- N/A



SECTION Q

CONCLUDING STATEMENT/REMARKS

It is the opinion of the EAP that the project be considered and allow for the proposed road upgrade and causeway structure construction associated with the Mbilane Road to proceed since the impacts associated with project are moderate as the road exists, but all prescribed mitigation measures and recommendations must be implemented.

LIST OF EXTERNAL REFERENCES:

- Okhahlamba Local Municipality (2018 - 2019). *Okhahlamba integrated development plan (IDP) 2018 - 2019*.