DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME FOR PROPOSED UPGRADE AND DEVELOPMENT OF NGCONCO ACCESS ROAD WARD 11, TUGELLA FERRY KWAZULU NATAL.

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

EIA REFERENCE NUMBER: DC24/0010/2019

PREPARED FOR:

Msinga Local Municipality

PREPARED BY:

Isolendalo Environmental Consulting

Tel: (039) 315 0437
Fax (039) 312 1208
Email: l.fada@isolendalo.co.za
Enquiries: Lwandisa Fada

19 VALLEY ROAD, MARGATE, 4275
P O BOX 1503, MANABA BEACH, 4276

DOCUMENT TITLE	DATE
EMPr for the Proposed Upgrade and Development of Ngconco Access Road, Ward 11, Tugela Ferry.	09 September 2019

Authors:

Verification		Date	Signature
Compiled by	Lwandisa Fada	Sept. 2019	
Reviewed by	Anelisa Mhatu	Sept. 2019	
Approved by	Welcome Nogobela	Sept. 2019	

List of Abbreviations

NEMA	National Environmental Management Act (No. 107 of 1998)
EIA	Environmental Impact Assessment
BAR	Basic Assessment
EMPr	Environmental Management Programme
DEA	Department of Environmental Affairs
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DWS	Department of Water and Sanitation
MDM	Mzinyathi District Municipality
MLM	Msinga Local Municipality
I &AP	Interested and Affected Parties
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
RE	Resident Engineer

Contents

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

1 INTRODUCTION

Msinga Local Municipality appointed Isolendalo Environmental Consulting as Independent Environmental Assessment Practitioners to undertake an Environmental Impact Assessment (EIA) in terms of National Environmental Management Act (Act No. 107 of 1998) and in accordance with the stipulated provisions indicated in Government Notice R 982 of the Environmental Impact Assessment (EIA) Regulations of 2014 to assess anticipated impacts and ensure compliance to environmental requirements. Isolendalo Environmental Consulting has therefore compiled this document which serves as an EMPr to provide principles for the management of environmental impacts which are expected to occur during the construction phase and operation phase of the proposed upgrade and development of Ngconco Access Road. There are a number of impacts, both environmental and social, that may result from the construction and operation of the proposed activity. However, some of these impacts are positive impacts.

UMsinga Local Municipality is proposing an upgrade and development of Ngconco access road in Etembeni Mission Location (ward 11), Tugela Ferry situated within Msinga Local Municipality and falls under Mzinyathi District Municipality. The proposed development entails upgrading of existing road tracks and development of Ngconco access road. In addition, the proposed development entails an installation of 21 precast concrete pipes and 2 concrete slabs. Currently, some portions of the road have tracks and the other have no tracks, as such a proposed upgrade and development. There are currently no structures on the crossings as there is no formal road. The proposed development will bring both economic and social benefits to ward 11 in terms of job creation. The intention of this road upgrade is to improve safety, provide improvements to infrastructure and the proposed activity will play a huge role in reducing road accidents. The proposed activity is of huge importance in terms of health and safety because upgrade of this road will minimize dust generated and therefore minimize health issues related with dust generated.

The specification of the proposed development and upgrade of Ngconco access road is as follows;

Msinga Local Municipality is proposing an upgrade of the road tracks 1.6 km road and development of 1.95 km. The Total width of the proposed road is 5 m. The proposed activity will cross over a small crossing where precast concrete pipes and concrete slabs will be installed within the small crossings.

- The total length of the road is 3.55 km
- The width of the road is 5 m
- The proposed road will be upgraded to a 7A type of gravel.

The proposed upgrade, being a large-scale development will have significant impacts on the natural environment and as such an Environmental Management Programme (EMPr) is imperative. The primary intention of this EMPr is to define environmental measures and procedures to prevent, minimize and mitigate adverse impacts and to ensure compliance with applicable environmental standards during both construction and operation of Ngconco access road and associated structures.

1.1 Outline of the Study Area

The development is proposed in Etembeni Location under Ward 11 of Tugela Ferry situated in a rural area within uMsinga Local Municipality and uMzinyathi District Municipality. Msinga Local Municipality is one of four municipalities situated under the uMzinyathi District Municipality of KwaZulu Natal Province in South Africa. Environmental features of the study area are Highlighted briefly below.

1.2 Environmental Features of the Study Area

Climate

In general, KwaZulu Natal is characterized by warm and sunny summers, January being the hottest month and rainfall usually occurs during summer (November through March) and Winter is characterized by cold and dry conditions. As mentioned in the description that the study area falls within Tugela Ferry, Tugela Ferry is characterized by mild, warm and temperate climatic conditions, the summers here have a good deal of rainfall, while the winters have a very little rainfall and few days of severe frosts.

Tugela Ferry experiences high temperatures in Summers and in Winter the temperatures drop. February is the hottest month of the year and June is the coldest month with minimum temperatures 5.2 ˚C.

According to Msinga LM IDP (2018), the climatic conditions in Msinga are mainly influenced by the topography of this area, such that in 2013, the area experienced floods which claimed lives of many residences. Tugela Ferry receives an annual precipitation of approximately 679 mm.

Vegetation

Msinga mainly comprises of rural set-up environment, Mzinyathi district mainly comprises of grassland which covers approximately 30.3 % of the land and 11.0 % is dominated by dense bush. Ezemvelo KZN Wildlife embarked on a journey of mapping all critical biodiversity areas in KwaZulu Natal. The results of the mapping displayed a lot of scattered areas within the Msinga Local Municipality that are classified as Biodiversity area 3, referring to disturbed and transformed land. The study area falls within an area that is already disturbed in terms of vegetation, since there is an existing informal access road and footpaths. The study area falls within grassland and Savanna Biomes and the area is pre-dominated with low laying vegetation cover mainly grass, the following vegetation species pre-dominate the area: ThukelaThornveld and Northern KwaZulu Natal Moist Grassland.

1.3 Social and Land Use

Ngconco access road is basically situated in a rural type of settlement, despite the growing human settlement within the community of Ward 11. The current land use in Ward 11 includes both farming and homesteads (residential).

The proposed activity of upgrade and development of Ngconco access road will improve the living conditions both socially and economically as people will not have to travel distances in a poorly constructed infrastructure and the activity will enhance the livelihood of the community as there will be more local jobs created during the construction phase.

1.4 Contact Details

Below are the details of the project team including the developer, EAP, Engineer and Competent Authority.

ORGANISATION/COMPANY	ROLE	CONTACT PERSON	CONTACT DETAILS
uMsinga Local Municipality	Developer	SL Sokhela	Private Bag x530 Tugela Ferry 3010 Tel: 033 493 0760 Fax: 033 493 0757 Email: SL_sokhela@yahoo.com
Isolendalo Environmental Consulting	EAP	Welcome Nogobela	19 Valley Road Margate 4275 Tel: 039 315 0437 Fax: 039 315 0407 wnogobela@isolendalo.co.za
Department of Economic Development, Tourism and Environmental Affairs	Competent Authority	Gerald Willis-Smith	Block 2, Talana Building 26 Beaconsfield Street Dundee 3000 Tel: 034 299 7913 Gerald.Willis-Smith@kznedtea.gov.za

2 THE ENVIRONMENTAL PROCESS

In accordance with the Integrated Environmental Management Guidelines published by the Department of Environmental Affairs (DEA) 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*". It is a detailed plan of action prepared to organise and coordinate environmental mitigation, rehabilitation and monitoring so that positive impacts are enhanced, and negative impacts and damage to the environment are avoided, minimised or rectified where required.

2.1 The objectives of the EMPr are 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.

This EMPr, which forms an integral part of the contract documents, informs the developer of his duties in the fulfilment of the project objectives, regarding the prevention and mitigation of environmental impacts caused by construction and operational activities associated with the project. This is to include any rehabilitation and landscape work which is needed during post-construction which would be carried out by the Contractor (C) or specialist subcontractor who may be appointed to do such rehabilitation work. The provisions of the EMPr are binding on the Contractor during the contract period and the developer in the operational phase.

All activities and earthworks associated with construction will be undertaken in accordance with SABS 1200 standards, which deal with guidelines for civil engineering and general construction works. Any environmental issues that are identified during or after construction will be addressed in consultation with the Environmental Control Officer (ECO). As such it should be noted that this document is a dynamic document that may require updating or revision where necessary.

3 LEGAL FRAMEWORK

Environmental legislation applicable to the formulation of an EMPr includes but is not restricted to the following:

Title of Legislation, policy or guidance	Administering Authority	Date
South African Constitution Act (Act No.107 of 1998)	South Africa	1998
National Environmental Management Act (Act No 107 of 1998 [NEMA]) as amended	Department of Environmental Affairs (DEA)	1998
Environment Conservation Act (Act No.73 of 1989)	DEA	1989
EIA Regulations, 2017	DEA	2017
National Water Act (Act No 36 of 1998)	Department of Water and Sanitation (DWS)	1998
National Waste Management Act (Act No. 64 of 2014)	DEA	2008
National Environmental Management Biodiversity Act (Act 10 of 2004)	DEA	2004
National Air quality (Act 39 of 2004)	DEA	2004
Municipal Bylaws	Mzinyathi District Municipality and Msinga Local Municipality	2018/2019

4 PARTIES INVOLVED

4.1 Project Manager / Engineer (PM / E)

The Project Manager / Engineer are the administrators of the project acting in line with requirements and scope of work from the developer. The engineer is responsible for all direct communication with the contractor.

4.2 Contractor (C)

The main Contractor(s) appointed by the developer for construction of Ngconco Access Road. The contractor will be appointed by the engineer. The main Contractor(s) is required to adhere to the EMPr and is responsible to ensure that all sub-contractors, suppliers and staff appointed by them also adhere to the EMPr. The contractor is also responsible for direct communication with the ECO concerning all environmental non-compliances.

4.3 Environmental Control Officer (ECO)

An independent Environmental Assessment Practitioner appointed by the Developer to act on behalf of the Developer in matters concerning the day-to-day implementation of the EMPr and for liaison with the Engineer and Contractor. The ECO must monitor this development on a regular basis during the construction and rehabilitation phases to ensure compliance with the EMPr. Non-compliances identified must be communicated with the Project Manager (PM), Contractor and Developer with open channels of communication and liaison between these parties. Reports are to be compiled by the ECO which must include photographs taken during inspection and must be submitted to the Project Manager, Developer and EDTEA monthly (uMzinyathi District Offices).

4.4 Local Community

People residing or present in the region and near the construction activities, including the owners and/or managers of land affected by construction, workers on the land, and people in nearby towns and villages. For this particular development it will be people from Ward 11.

4.5 Public

Any individual or group concerned with or affected by the Project and its consequences, including the local community, local, regional, and national authorities, investors, workforce, customers, consumers, environmental interest groups, and the public.

5 PROJECT DETAILS

Msinga Local Municipality is proposing an upgrade and development of Ngconco Access Road, the proposed activity entails upgrade of Ngconco access road into a 7A gravel road and installation of precast structures particularly the area with watercourses, for further details of the project please see drawings.

6 RECORD KEEPING

A copy of the EMPr must be kept on site at all times and made available for inspection by visiting officials. This EMPr will be of use during the implementation of Ngconco access road. The ECO must issue the Contractor with a notice of non-compliance whenever transgressions are observed. The Contractor must document the nature and magnitude of any non - compliance in a designated register, the action taken to correct the non-compliance, the actions taken to mitigate its effects and the results of those actions. Any non-compliance shall be documented and reported to the Project Manager in a monthly report. The Contractor must also record all complaints received regarding activities on the construction site pertaining to the environment, and the response noted with the date and the action taken. Complaints register will be available in the environmental file. These records must be submitted to the Project Manager in the monthly report.

7 COMPLIANCE AND PENALTIES

The duration over which the Contractor's controls shall be in place cover the construction period of the project as well as the limited time after the contract completion in the General Conditions of Contract, and the project specifications, as the defects liability period.

The Developer/Contractor is deemed not to have complied with the EMPr if:

1. There is evidence of contravention of clauses with the boundaries of the site, site extensions and access roads;
2. Environmental damage occurs due to negligence;
3. The contractor fails to comply with corrective or other instructions issued by the Project Manager or Engineer or Environmental Control Officer within a specified time frame;
4. The contractor fails to respond adequately to complaints from the public or local community.

The Contractor must act immediately after a notice of non-compliance is received and correct the cause for the issuing of the notice.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as deemed fit. The polluter-pays principle applies.

The "polluter-pays" principle provides that "the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment. NEMA imposes a duty of care on every person who causes, has caused or may cause significant pollution or degradation of the environment is authorised by law or cannot reasonably be avoided, NEMA requires that the pollution be minimised and rectified.

Furthermore, NEMA makes provision for damages to be awarded by the courts where loss or damage has occurred as a result of a contravention of certain environmental statutes. For example, offences under the National Water Act No. 36 of 1998 and the Environmental Conservation Act No. 73 of 1989 may result in penalties being imposed in terms of NEMA. Importantly, NEMA provides for the liability on conviction of employees, managers, agents and directors for any offences resulting from the failure to take all the reasonable steps that were necessary under the circumstances to prevent the commission of an offence.

8 AMENDMENTS TO THE EMPr

Any amendments to the EMPr shall be made in agreement between the ECO and Project Manager. Some of the provisions within the EMPr may be altered during the construction phase as is seen necessary by the ECO.

9 SIGNING OF THE EMPr

The acknowledgement form at the back of the EMPr is to be signed by the Developer and all the Contractors. All the Contractor's employees, especially the machine and equipment operators, are to be made aware of the conditions as contained in the EMPr and the contractual conditions relating to the environment, as contained in the contract document. An induction to cover this section must be conducted prior commencement of construction of Ngconco Access Road.

10 RECOMMENDATIONS FOR PROPOSED DEVELOPMENT AND UPGRADE OF NGCONCO ACCESS ROAD

It is the view of the Environmental Consultant that the preferred activity will NOT have any major geophysical, biophysical or socio-economic environmental impacts, provided the recommendations regarding the mitigation and rehabilitation measures presented in this EMPr are adhered to. The Environmental Consultants believe that the proposed activity will have strong social benefits, the activity will enhance job creation in Ward 11, Tugela Ferry. Furthermore, the proposed activity of the development and upgrade of Ngconco access road will help maximizing both the need and desirability of development to the applicant and the surrounding community.

11 PROCEDURE

11.1 Pre-construction Phase

A pre-construction meeting will be conducted with the professional team to understand the contents of the EMPr and address any arising issues prior the commencement of construction activities. The requirements of the EMPr must be

incorporated into any tender/contract documents by way of specific clauses that convey the impact and mitigation required. These clauses are to be agreed between the responsible professional members of the team and the environmental consultant.

11.2 The Construction Phase: Responsibilities and General Matters

Miscellaneous environmental matters and the relationships between the Contractors, ECO and the other members of the professional team are outlined in this section.

11.3 Activity

This section highlights the various aspects or impacts related with the project i.e. the Applicant / Contractor's activities that will interact with the environment.

11.4 Management/Mitigation Measures

This section in the table indicates the actions required to either prevent and / minimize the potential impacts on the environment that is associated with the project.

11.5 Responsibility

The section indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr. Formal responsibilities are necessary to ensure that key procedures are executed.

11.6 Frequency/Timing

This section indicates when and/how often the actions for that specific aspect must be implemented and /or monitored. Environmental Audits shall be undertaken at least once a month until the construction is complete.

12 Pre-Construction, Construction, Operational Phase, Decommissioning phase, Staff Conduct

A. PRE-CONSTRUCTION PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
A1 - Legislation, permits, agreements and EA requirements	All members of the project team must adhere to all environmental legislation relevant to the project as highlighted in Section 3.	All	Pre-, during and post construction.
	1. The EMPr must be kept on site always. 2. All members of the project team must be provided with adequate environmental training. 3. All mitigation measures that must be set up prior construction must be implemented. 4. Monitoring and control programmes must be put in place to manage alien invasive plants. 5. The working area is to be clearly demarcated and all construction work is to be kept within the demarcated area.	All	Ongoing
A2 - Access to site *Sound environmental principles must be followed*	**A2.1 Routing**		
	1. The Contractor will have to establish the existing condition of the access road and repair accordingly should damage occur due.	ECO, C & PM	Prior to moving onto site and during construction
	b. Access route must be clearly marked and disturbance outside these areas is not permitted. Choice of access routes must consider minimum disturbance to residents.		
	c. The Contractor must consider any limitations identified and recommendations made during the environmental studies when deciding on an access route to the construction site.		

	d. The location of all underground services and servitudes must be identified and confirmed before construction commences (IF ANY).		
	f. A working corridor must be determined to avoid excess trampling and damage to the site.		
	A.2.3 Survey Points	E	During surveys and preliminary investigations
	a. Marking of survey points must be done with the Engineer's approval.		
	b. Vegetation clearing and disturbance must be kept to a minimum during the survey.	PM / ECO	
A3 – Setting up the construction camp *Careful planning of the construction camp can ensure that time and costs associated with environmental management and rehabilitation are reduced.*	**A3.1 Layout & Location**	E / C / PM / ECO	During surveys and preliminary investigations and prior to moving onto site.
	a. Choice of site for the Contractor's camp requires the engineer's permission and must consider the location of residents and / or ecologically sensitive areas, including flood zones and slip / unstable zones. A site plan must be submitted to the Engineer for approval. The construction camp must preferably be positioned on previously disturbed area.		
	b. If the Contractor chooses to locate the campsite on private land, he must get prior permission from both the Engineer and the landowner.		
	c. The size of the construction camp must be minimized (especially where vegetation/grassland has had to be cleared for the site camp).		
	d. The construction camp must be properly fenced with a 1.8m high bonnox (or similar type) fence, secured and kept in a clean and orderly state always.	E / C / PM	During site establishment and on-going.

	e. The construction camp must be located on a level area at least 50m from any watercourse, wetland, water supply or on slopes greater than 1:3. The position of the camp must be ratified by the Engineer and the ECO.	E / C / PM / ECO	During site establishment Prior construction
	g. The Contractor must attend to the drainage of the campsite to avoid sheet erosion and / or standing water.	E / C / PM / ECO	During site establishment
	A3.2 Ablutions		
	a. Temporary chemical toilets must be provided by a company approved by the Engineer.	PM / C / ECO	During set-up
	b. The construction of a "long-drop" is forbidden.	E / PM / ECO	On-going
	c. A service plan for the maintenance of the toilets must be provided by the Contractor and is to be approved by the Engineer and ECO to ensure toilets are properly serviced and hygienic.		
	A3.3 Provision for Camp Waste Disposal		
	a. Bins and / or skips must be provided at convenient intervals for the disposal of waste within the camp. The bins must be covered. Bins should have liner bags for efficient and safe disposal of waste.	PM / C / ECO	During site set-up and on-going.
	b. At least three rubbish bins must be located at the construction camp for the collection of waste.		
	c. Recycling and the provision of separate waste receptacles for different types of waste should be encouraged. Where possible, plastics, paper, glass and cans should be separated from other domestic waste for recycling. If waste is to be recycled, appropriately labelled waste receptacles must be made available.		
	e. Any potentially hazardous containers must be punctured or disabled prior to disposal.		

A4 – Establishing Equipment Lay-Down & Storage Areas *Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully. Hazardous substances are those that are potentially poisonous, flammable, carcinogenic, or toxic. Some examples are: diesel, petrol, oil, bitumen, cement, solvent based paints, lubricants, explosives, drilling fluids, pesticides, herbicides, LPG.*	**A4.1 – General Substances and Materials**		
	a. Choice of location for equipment lay-down and storage areas must consider prevailing winds, distances to water bodies, general on-site topography and water erosion potential of the soil. These areas must be located within previously disturbed areas for this project. Impervious surfaces must be provided where necessary.	PM / E / C / ECO	During site set-up
	b. Fire extinguishers must be present at all storage facilities.		
	c. Storage areas must be secure to minimise the risk of crime. They must be safe from access by children and animals etc.		
	d. Equipment lay-down and storage areas must be designated, demarcated and fenced.		
	A4.2 –Hazardous Substances and Materials		
	a. Storage areas for hazardous substances or materials must be fenced and access controlled.		
	b. These storage facilities must be on an impermeable surface that is protected from the ingress of storm water from surrounding areas in order to ensure that accidental spillage does not pollute local soil or water resources. The Contractor shall submit a method statement to the Engineer and ECO for approval.		
	c. Material Safety Data Sheets (MSDSs) must be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs must additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.	PM / E / C / ECO	Ongoing

	d. Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures. The Contractor must ensure that its staff is made aware of the health risks associated with any hazardous substances used and has been provided with the appropriate protective clothing / equipment in case of spillages or accidents and have received the necessary training.		Ongoing
	e. All concrete mixing must take place on a designated, impermeable surface.		During construction
A5 – Education of site staff on general and environmental conduct *These points need to be made clear to all staff on site before the project begins*	**A5. 1 – Education**		
	a. The Contractor must ensure that all site personnel have a basic level of environmental awareness training. Environmental awareness posters must be used on site. The Contractor must submit a proposal for this training to the ECO for approval. Topics to be covered must include: 1. What is meant by "environment"; 2. Why the environment needs to be protected and conserved; 3. How construction activities can impact the environment; 4. What can be done to mitigate against such impacts; 5. Awareness of emergency and spills response provisions; 6. Social responsibility during construction e.g. being considerate to residents. It is the contractor's responsibility to provide the site foreman with environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff.	PM / C / ECO	Prior Construction During staff induction and on-going

	b. Staff operating equipment shall be adequately trained and sensitized to any potential hazards associated with their tasks.	PM / E / C / ECO	During staff induction, followed by on-going monitoring
	c. The Engineer / ECO must be on hand to explain more difficult / technical issues and to answer questions which may be raised.		
	d. The use of pictures and real-life examples is encouraged as these tend to be more easily remembered.		
	e. No operator shall be permitted to operate critical items of mechanical equipment without having been trained by the Contractor and certified competent by the Project Management.		
	f. All employees must undergo the necessary safety training.		
	A5.2 – Worker conduct on site	PM / C	

	A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following rules: a. No alcohol / drugs to be present on site, no vehicles or machinery are to be operated whilst under the influence of alcohol or drugs. b. Prevent excessive noise to minimize disturbances to residents. c. No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel). d. Bringing pets onto site is forbidden. e. Construction staff are to make use of facilities provided for them, as opposed to ad-hoc alternatives (e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden). No fires to be permitted on site. The use of gas-operated cookers for preparation of food on site must be encouraged. f. Trespassing on private / commercial properties adjoining the site is forbidden. g. Only ***pre-approved*** security staff and workers shall be permitted to live on the construction site. h. No worker may be forced to do work that is potentially dangerous or for what he / she is not trained to do. i. The staff conduct rules are described in a separate table of Rules (Section F of the EMP). This is aimed at providing staff with the basic information regarding worker conduct on site).		During staff induction, followed by on-going monitoring

A6 – Social Impacts *It is important to take notice of the needs and wishes of those living or working adjacent to the site. Failure to do so can cause disruption to work and increase cost in the form of delays.*	**A6.1 Public Participation**		
	a. All Interested and Affected Parties (IAPs) must be notified of the starting date of construction and the proposed duration.	E / PM/ C	Prior to moving onto the site and on-going
	b. Open liaison channels must be established between the developer, landowner, the contractors and Interested and Affected Parties (IAPs) such that any queries, complaints or suggestions can be dealt with quickly and by the appropriate person(s). The IAPs can be identified as those that live close by the site, work close to the site, will have their services / infrastructure affected by the project, have a general interest in the project, and / or the ward Councillor in which the construction is taking place.	E / PM	Prior to moving onto site and on-going
	c. Adequate designated parking must be provided for site staff and visitors.	C / PM	Prior to moving on site
	d. A complaints register must be kept on site. IAPs need to be made aware of the existence of the complaints book and the method of communication available to them. Details of complaints must be incorporated into the audits as part of the monitoring process. This must be in carbon copy format, with numbered pages.	C / PM / ECO	On-going
	A6.2 Noise Impacts		
	a. Construction vehicles / machines are to be fitted with standard silencers prior to the beginning of construction. Operating and service standards must be followed as per operating instructions of the vehicles and machines.	E / PM / C	During surveys and Prelim Investigations and site set up.

A7 Soil Erosion *The stripping of vegetation during preliminary activities on site greatly increases the risk of soil erosion.*	**A.7.1 Conservation of Valuable Soil Resources**		
	a. Procedures that are in place to conserve topsoil during the construction phase of the project are to be applied to the set-up phase, i.e. topsoil is to be conserved while providing access to the site and setting up the camp.	E / PM / C / ECO	Throughout the duration of the project
A.8 Stormwater *Serious financial and environmental impacts can be caused by unmanaged storm water.*	**A.8.1 Storm water Damage Prevention**		
	a. To prevent storm water damage, the increase in storm water runoff resulting from the construction activities must be estimated and the drainage system assessed accordingly. A drainage plan must be submitted to the Engineer for approval and must include the location and design criteria of any temporary stream crossings.	E / ECO / PM	During surveys and preliminary investigations.
	b. During site establishment, all material to be used during construction must be placed safely and accordingly as deemed necessary by the Engineer.	E	During site establishment
A.9 Water Quality *Incorrect disposal of substances and materials and polluted run-off can have serious negative effects on groundwater quality.*	**A.9.1 Maintenance of Water Quality**		
	a. Storage areas that contain hazardous substances must be bunded with an approved impermeable liner.	E / PM / ECO	During site set up.
	b. A designated, bunded area is to be set aside for vehicle washing and maintenance. Materials caught in this bunded area must be disposed of to a suitable waste disposal site or as directed by the Engineer.		

	c. Provision must be made during set up for all polluted run-off to be treated to the Engineers approval before being discharged into the storm water system. Any waste that cannot be treated to acceptable standards on site must be treated and disposed by a licensed treatment company.		During site set up, to be monitored weekly
A.10 Set up of Waste Management	**A.10.1 Waste Management**		
	a. The contractor is responsible for the internal collection of refuse and for transporting it to a registered landfill site once every week; unless a service agreement is entered into between the contractor and the municipality.	C	During site set up
	b. The excavation and use of rubbish pits is forbidden.	PM / ECO / C	During site set up
	c. Burning of waste is forbidden[1].		
	d. A fenced area must be allocated for waste sorting and storage prior to removal.		
	e. Individual skips/bins for different types of waste (e.g. 'household' type refuse, building rubble, etc.) must be provided.	C / PM / ECO	During site set up and on going
	A.11.1 Protection of Cultural Environment		
A.11 Cultural Environment	Prior to the commencement of construction, all the staff needs to know what possible archaeological or historical objective of value may look like, and to notify the Engineer / Contractor should such an item be uncovered.	ECO / PM / C	During site set up and on-going.

[1] A possible exception to this may be that the alien invasive vegetation, which is removed from the site, should be burned to prevent the spread of the plants.

	If any artefacts or graves are uncovered during construction, all work on site is to cease and AMAFA as well as the ECO is to be notified for comments. Construction may only commence once approval by AMAFA is granted.		
A.12 Safety and Security	**A.12.1 Fencing / Demarcation**		
	a. All necessary signage must be obtained prior to the commencement of construction activities.	PM / C / ECO	On-going.
	A.12.2 Lighting		
	a. Lighting on the construction campsite is to be set out to provide maximum security and to enable policing of the site, without creating a visual nuisance to local residents or businesses.	PM / C / ECO	On-going
	A.12.3 Risks Associated with Materials on Site		
	f. All IAPs must be notified in advance of any known potential risks associated with the construction site and the activities on it. Examples of these are blasting, earthworks / earthmoving machinery on steep slopes above houses / infrastructure, risk to residences along haulage roads / access routes.		

B. CONSTRUCTION PHASE

This pertains to all environmental impacts associated with construction and is not limited to the land on which the Project is to be located. It includes the site footprint, construction campsites, access roads and tracks, as well as any other area affected or disturbed by construction activities. The EMPr (particularly the specifications for rehabilitation) is relevant for all areas disturbed during construction. Furthermore, the EMPr takes into account all secondary impacts on the local community and the public. *(It is recommended that any disturbances, which may take place, commence only after the first spring flush so that any indigenous vegetation can be relocated for rehabilitation).*

Activity	Management / Mitigation	Responsibility	Frequency / Timing
B1 – Access to the site	B1.1 Maintenance of the access		
	a. Access to the site must be controlled and managed in such that it does not result in excessive dust liberation, damage to the vehicles or excessive environmental damage.	PM / E	Initial set up and on-going
	b. Contractors must ensure that access roads are maintained in good condition by attending to any damage as it occurs.	E / C / ECO	Establish at setup
	c. There needs to be adequate drainage of water underneath the access roads (both during construction & in operation). This can be done through a culvert / water diversion system.	PM / E / ECO	When necessary

	d. It is recommended that entry and exit points to the proposed development are clearly marked and designed in such a way as to allow for good line of sight and traffic viewing (allowing a 100m – 150m line of site on both sides of the access).		
	e. Unnecessary compaction of soil by heavy vehicles must be avoided; construction vehicles must be restricted to demarcated access, haulage routes and turning areas.	PM / C / EC	On-going, and specifically after heavy rain
	f. The construction signs must be placed at the beginning of the project indicating all necessary information such as Contractor and Municipality. Approval must be sought from the relevant authority for the installation of the signage.	PM / E / C / ECO	
	g. Machine / vehicle operators must receive clear instructions to remain within demarcated access routes. Movement of heavy-duty vehicles and vehicles not connected with work in progress must be restricted to the construction zone.	E / C / PM	On-going, and specifically after heavy rains
	B.1.2 Haulage Roads		
	a. Contractor must ensure that all side and mitre drains V Drains as well and scour check walls on access and haul roads are functioning properly and are well maintained.	C / PM / E / ECO	On-going, and specifically after heavy rains

B.2 Maintenance of Construction Camp	**B.2.1 Surfaces**		
	a. The Contractor must monitor and manage drainage of the campsite.	PM / C / ECO	Weekly inspection
	b. Run-off from the campsite must not discharge into neighbours' properties.		
	B.2.2 Ablutions		
	a. Temporary chemical toilets must be provided by a company approved by the Engineer. The toilets must be made available to all staff, and must be no closer than 50m from any watercourse. These facilities must comply with local authority regulations, be maintained in a clean and hygienic condition. Their use must be strictly enforced.	C/ECO	On-going
	b. The construction of a "long-drop" is forbidden and Contractor is to ensure that open areas or the surrounding bush are not being used as a toilet facility.	C / ECO	On-going
	c. There shall be a minimum of 1 toilet for every 20 workers and these must be situated no further than 100m from the work front. A toilet must also be provided at campsite.	PM / ECO	On-going
	d. Under no circumstances may open areas or the surrounding bush or degraded and built up areas be used as a toilet facility.	PM / ECO	On-going
	e. A registered chemical waste company is to be used to remove waste from chemical toilets on site on a regular basis. Proof of toilet service and safe disposal of effluent must be kept on site for each service.	PM / ECO	On-going

	B.2.3 Camp Waste Disposal		
	a. The Contractor must ensure that all litter is collected from the work and camp areas daily. 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.	PM / C / ECO	On-going
	b. Bins and / or skips must be emptied regularly and waste must be disposed of at a registered landfill site. Waybills for all such disposal are to be kept by the Contractor for review by the Engineer / ECO.	PM / C / ECO	Daily
	B.2.4 Eating Areas		
	a. Eating areas must be regularly serviced and cleaned to ensure the highest possible standards of hygiene and cleanliness.	E / PM /C	Weekly monitoring
	b. 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.	E / PM /C	On-going monitoring
	B.2.5 Housekeeping		
	a. The Contractor must ensure that his camp and working areas are kept clean and tidy always.	PM / C	On-going

B.3 Staff Conduct	**B.3.1 Environmental Education and Awareness**		
	a. The Contractor must monitor the performance of the construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, the ECO should be called to the site to further explain aspects of environmental or social behaviour that are unclear.	PM / C / ECO	On-going
	B.3.2 Worker Conduct on Site		
	a. The rules that are explained in the worker conduct section must be followed always. Non-compliance of these rules could result in the removal of workers by the contractor.	PM / C / ECO	On-going
B4 – Dust / Air Pollution *Main causes of air pollution are dust particles from vehicle movements and stockpiles, vehicle emissions and fires*	**B.4.1. Dust & Air Pollution**		
	a. Vehicles travelling to and from the construction site must adhere to the speed limits to avoid producing excessive dust. A speed limit of 40 km/h must be adhered to on the construction site.	E / C / PM	As directed by Engineer
	b. Construction operational hours must be limited to between 07h00 and 17h00 will reduce congestion and disturbance in surrounding areas and minimize road deterioration and consequent dust creation.	E / C /PM	As directed by Engineer
	c. Access points and other cleared surfaces must be dampened whenever necessary and especially in dry and windy conditions to avoid excessive dust.	PM / C	On-going

	d. Should excessive emissions be observed from vehicles and machines; the Contractor is to have the equipment seen to immediately.	PM / C / ECO	On-going
	e. Stockpiles may cause dust and must therefore be managed in accordance with the guidelines in Materials Management.	PM / C / E	On-going
	f. Stockpiles not used in three (3) months after stripping must be seeded to prevent dust and erosion.	E / PM / ECO	On-going
B5 – Soil Erosion	**B.5.1 Topsoil Stripping and Stockpiling**		
	a. Excavated soil and other material must be deposited in a spoil area as agreed with ECO and engineer.	PM / C / ECO	As each activity is completed.
	b. Erosion prevention measures must be implemented: Berms and sand bags may be used to contain all sediment whilst energy dissipaters must be constructed at all outflow points. The site must be monitored weekly for any sign of off-site siltation. All exposed earth must be rehabilitated promptly with suitable vegetation to protect the soil.	E / PM / C / ECO	On-going
	B.5.2 Exposed Surfaces		
	a. Side tipping of soil and excavated materials must not be permitted.	E / C / PM	As directed by the Engineer
	b. Storm water control and wind screening must be undertaken to prevent soil erosion on site.	E / ECO / PM	As directed by the Engineer

	c. 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.	E / ECO / PM / C	As directed by the Engineer
	d. In areas where steep slopes are excavated, erosion control measures need to be initiated and these may include the planting of indigenous vegetation at short intervals to prevent the formation of gullies.	E / ECO / PM / C	As directed by the Engineer
	f. A Storm Water Management Plan must be developed, provided and implemented by the engineer. Drainage must be controlled to ensure that runoff from the access road will not lead to erosion and offsite pollution of any water resources along the road. The storm water drainage system must not be contaminated by other waste sources generated during construction phase of the development.	PM / E / C / ECO	On-going and as directed by the Engineer
	g. Battering of all banks shall be such that cut and fill embankments are no steeper than previous natural slopes unless otherwise permitted by the Engineer. Cut and fill embankments steeper than previous ground levels shall be re-vegetated immediately on completion of trimming or shall be protected against erosion using measures approved by ECO and Engineer.	PM / E / C / ECO	Ongoing and as directed by the Engineer

	h. If cut and fill earthworks are required, these must be limited to the minimum necessary for the proposed development. 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.	E / PM	Directed by the Engineer
	i. All embankments, unless otherwise directed by the Engineer, shall be protected by a cut off drain to prevent water from cascading down the face of the embankment and causing erosion.	E / C / ECO	Directed by the Engineer
B6 – Storm Water *Construction activities frequently result in diversion of natural water flow resulting in concentration of flow and an increase in the erosive potential of the water*	**B6.1 General Principles**		
	a. The Contractor must not in any way modify nor damage the banks or beds of streams, rivers, wetlands, 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.	E/ PM / ECO	As surface becomes exposed
	b. Earth, stone and rubble is to be properly disposed of so as not to obstruct natural pathways over the site. i.e. these materials must not be placed in storm water channels, drainage lines or rivers.	E / PM / ECO / C	On-going

	c. The provisions of the National Water Act 36 of 1998 shall be complied with at all times.	PM / C / E / ECO	On-going
	d. The Contractor is to ensure that impediments to natural water flow is avoided during construction, or is temporarily diverted.		
	e. There must be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.		
	B.6.2 Un-channelled Flow		
	a. During construction un-channelled flow must be controlled to avoid soil erosion.	PM / C / E / ECO	On-going monitoring
	b. Where surface runoff is concentrated (e.g. along exposed tracks), flow must be slowed by contouring.	E / ECO / PM	On-going
B7 – Water *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*	**B7.1 Water Quality**		
	a. 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. The Contractor is to compile a list of emergency contact numbers to refer to in order to deal with fire, spillages and contamination of land and aquatic environments.	PM / E	On-going monitoring
	b. Every effort must be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site.	PM / E / ECO	On-going monitoring / as the work progresses

materials into rivers and watercourses are detrimental to water quality.	c. Care must be taken to ensure that runoff from vehicle or plant washing does not enter surface or ground water. Vehicles and machinery may only be cleaned at a designated place at the construction camp.		
	d. Mixing / decanting of all chemicals and hazardous substances must take place either on a tray or on an impermeable surface.	PM / E / C	
	e. Contaminated wastewater must be managed by the site manager to ensure existing water resources on the site are not contaminated. All wastewater from general activities in the camp shall be collected and removed from the site for appropriate disposal at a licensed commercial facility.	PM / C / ECO	
	f. Site staff shall not be permitted to use any watercourse or natural water source adjacent to the designated site for the purposes of bathing, washing of clothing or for any construction related activities. Municipal water (or another source approved by the Contractor) must instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, compacting etc.	PM / C / ECO	
	g. Dewatering of vessels, tanks, etc is to take place in a controlled manner. No uncontrolled release of water shall be allowed onto the site area. Water wastage must be avoided and where possible water must be recycled.	PM / C / ECO	

	B7.2 Water Supply		
	a. Any existing potable water source affected by the road construction is to be maintained for domestic use during construction.	E / PM	
B8 – Conservation of the Natural Environment	**B8.1 Fauna and Flora**		
	a. The Contractor is to check that vegetation clearing has the prior permission of the E / ECO. Vegetation that is removed is to be replanted and excavation is to be kept to a minimum.	ECO / PM / E / C	On-going monitoring / as the work progresses
	b. Development infrastructure must be screened wherever possible from ecologically sensitive areas to reduce the human disturbance factor.	C / PM / ECO	
	c. Alien vegetation encroachment onto the site as a result of construction activities must be controlled during construction. Immediate re-vegetation of stripped areas and removal of aliens by weeding must take place.	ECO / PM / E	
	B8.2 Geology		
	a. In the event of excavation, the material that is removed must be separated into topsoil and subsoil. The top 150mm would be considered topsoil and must be stockpiled separately.	PM / C / ECO	On-going monitoring
	b. In the event of infilling, replacement of subsoil must precede the topsoil replacement, and all material must be well compacted.		

B9 – Materials Management	**B9.1 Stockpile Management**		
	a. Stockpiles must not be situated such that they obstruct natural water pathways.	PM / C / ECO	On-going monitoring
	b. Stockpiles must not exceed two (2) metres in height unless otherwise permitted by the Engineer or be left for longer than three (3) months.	PM / C / ECO / E	On-going monitoring
	c. Stockpiles must be protected from erosion using appropriate measures for conditions the stockpiles are exposed to which may include construction of berms or low brick walls around their bases.	PM / C / E / ECO	On-going monitoring
	d. Stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding.		
	B9.2 Handling of Hazardous Materials		
	a. Cement, bitumen and other potential environmental pollutants must be mixed on an impermeable surface with special provisions for storm water management.	E / PM / C / ECO	On-going
	b. All empty containers must be removed from the site for appropriate disposal at a licensed facility and must be treated as hazardous waste.		
	c. No vehicles transporting concrete may be washed on site.		
	d. All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of / removed from the site.		

	e. Hazardous substances / materials are to be transported in sealed containers or bags.		
	f. 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.		
	B9.3 Sourcing construction materials		
	a. Wherever possible, materials that have been produced locally must be used for the construction of the site camp (e.g. bricks, window frames, etc)	E / C / PM	On-going monitoring
B10 – Waste Management *Definition; "Refuse" refers to all construction waste (such as rubble, cement, bags, timber, cans etc.)*	**B10.1 On-site Waste Management**		
	a. The Contractor shall ensure that all refuse is collected from the camp and work areas daily.	PM / ECO	Monitored weekly and at the start of the builder's holidays
	b. All material used for construction and maintenance must be removed from the site after construction or maintenance work.	PM / ECO	On-going
	c. Refuse must be placed in the designated skips / bins which must be regularly emptied. These must remain within demarcated areas and must be covered to prevent wind-blown rubbish and scavenging by people and animals.	PM / C / ECO	On-going
	d. In addition to the waste facilities within the construction camp, provision must be made for waste receptacles to be placed at intervals along the work front.	ECO / PM / C	On-going

	e. Littering on site is forbidden and the site shall be cleared of litter at the end of each working day.	ECO / PM	On-going
	B.10.2 Waste Disposal		
	Non – hazardous waste		
	a. All waste must be removed from the site and transported to a registered landfill site.	E / PM / ECO	On-going
	b. Any construction rubble shall be disposed of at registered disposal sites.	PM / E / C /ECO	On-going
	c. 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.	PM / ECO	On-going
	Hazardous Waste		
	a. Contaminated water associated with construction activities must be contained in separate areas with berms and must not be allowed to enter the natural drainage system.	PM / C / ECO	On-going
	b. Chemical waste must be stored in appropriate containers and disposed of at licensed disposal facilities.	PM / C	On-going
	d. Soil that is contaminated with, e.g. cement, bitumen, petrochemicals or paint must be disposed of at a registered hazardous landfill site.	PM / ECO / C	On-going

	e. A sump must be created for concrete waste. This is to be de-sludged regularly and the cement waste is to be removed to a tip site as approved by the local authority.	E / PM / ECO	At least 24 hours prior to the activity taking place.
B.11 Social Impacts *Regular communication between the Contractor and the IAPs is important for the duration of the contract.*	**B.11.1 Disruption of Infrastructure and Services**		
	a. Contractors activities and movement of staff is to be restricted to designated construction areas.	PM / C	On-going
	b. 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.	E / PM / C	Monthly
	c. The conduct of the construction staff when dealing with the public or stakeholders shall be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the Engineer.	E / PM / C	
	d. Disruption of access for residents must be minimised and must have the consent of the Engineer.	E / PM / ECO	
	e. The Contractor is to inform neighbours in writing of disruptive activities at least 24 hrs beforehand.	PM / C / ECO / E	

	f. Drivers of construction vehicles must exercise care when travelling to and from the site specifically when travelling through. Drivers of construction vehicles must be considerate of other road users. They are to be especially careful at narrow sections and water crossings or where livestock is being herded.	PM / C	
	B.11.2 Visual Impacts		
	b. The site must be kept clean to minimize the visual impact of the site.	PM / C / ECO	As required
	B.11.3 Noise		
	a. Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbours.	PM / C / ECO	On-going
	b. 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.	PM / C / ECO	On-going
	B.11.4 Communication with Interested and Affected Parties (IAPs)		
	a. The Engineer and Contractor are responsible for on-going communication with those people that are interested / affected by the project.	PM / C / E / ECO	On-going

	b. 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.		
	c. Selected staff are to be made available for formal consultation with IAPs in order to: explain the construction process; answer questions.		

C. POST-CONSTRUCTION

Activity	Management / Mitigation	Responsibility	Frequency / Timing
C.1 Construction Camp	**C.1.1 Construction Camp Rehabilitation**		
	a. All structures comprising the construction camp are to be removed from site.	E / PM / C / ECO	Project completion.
	b. The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint and fuels, etc. and these must be cleaned up.		
	c. All hardened surfaces within the construction camp area must be ripped, all imported materials removed, and the area shall be top-soiled and re-grassed using the guidelines set out in the re-vegetation specification.		
	d. The Contractor must arrange the cancellation of all temporary services.		
C2 – Vegetation	**C.2.1 Landscaping**		

	a. All disturbed areas or areas, which have been engineered for the purpose of the development, are to be rehabilitated with indigenous vegetation, which must be sourced from surrounding areas where possible. This will aid in preventing erosion within the site.		
C3 – Land Rehabilitation	**C.3.1 Land Rehabilitation**		
	a. Excavated soil and soil disturbance – excavated soil not used in the development must be disposed of in a designated area as agreed with Engineer. Surfaces are to be checked for waste products from activities such as concreting and asphalting and cleared in a manner approved by the engineer.	E / PM / C / ECO	Project Completion
	b. Rehabilitation must be executed in such a manner that surface runoff will not cause erosion of disturbed areas during and after rehabilitation.	E / PM / C / ECO	Project Completion
	c. All rubble is to be removed from the site to an appropriate disposal site as approved by the Engineer. Burying of rubble on site is prohibited.		
	d. The site is to be cleared of all litter.		
	e. All embankments are to be trimmed, shaped and re-planted to the satisfaction of the Engineer and ECO.	E / PM / C / ECO	
	f. All trimmed and / or compacted areas must be left rough to facilitate binding of topsoil and vegetation.	E / PM / C	

C4 – Materials and Infrastructure	**C.4.1 Removal of Barriers, Remediation of Damage**		
	a. All material used for building and maintenance must be removed from site after construction or maintenance.	PM / C / ECO	As completed
	b. The Contractor must repair any damage that the construction works has caused to adjacent areas.	PM / C / ECO	Continually as necessary
	c. Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the Engineer.	PM / E / C	On completion
	e. All residual topsoil stockpiles must be removed and disposed of as agreed with ECO and Engineer.	PM / E / C	On completion
	f. All areas where temporary services were installed are to be rehabilitated to the satisfaction of the Engineer and ECO.	PM / E / ECO / C	On completion
C5 – General	**C.5.1 General Remediation**		
	a. Temporary road works must be closed and access across these blocked.	E / PM / C	On completion of the construction and maintenance phases.
	b. All areas where temporary services including the borrow pit are to be rehabilitated to the satisfaction of the Engineer and ECO.	E / PM / C / ECO	
	c. A Meeting is to be held on site between the Engineer, ECO, and the Contractor to approve all remediation activities and to ensure that the site has been restored to a condition approved by the Engineer and ECO.		

D. OPERATIONAL PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
D1 – Vegetation / Landscape Management	a. All rehabilitated areas will need to be maintained and re-seeded with local indigenous vegetation where necessary on a regular basis.	The Local Municipality	On-going
D2 – Noise Control	a. Noise will be emitted by vehicles during the construction and operational phases however this will be within the acceptable limits.		
D3 – Traffic / Transport	a. Appropriate signage and road markings are to be installed to bring attention to the access. A 60-km/h-speed restriction is recommended. Speed restrictions would need to be adhered to along the road.		
D4 - Storm Water Management	a. The storm water management system implemented as part of the road must be monitored and maintained to ensure continued efficient functionality.		
D5- Solid Waste / Refuse Removal	a. Any waste which is produced from maintenance activities must be appropriately disposed of without any harm to the environment.		
D6 - Soil Erosion	a. The following measures need to form part of the management of the site: 1. Monitoring storm water exit points. 2. Fill in and re-vegetate eroded areas.		

	b. Community and users of the road must be encouraged to use the upgraded road and not create alternative roads and paths.		
D7 – Management of the Development	a. Regularly maintenance is vital.		

E. DECOMMISSIONING PHASE

The objective of providing guidelines during the decommissioning phase is to prevent structures from being left to deteriorate and look unsightly. 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.

F. STAFF CONDUCT CONTROL AND INFORMATION SHEET

	ALL STAFF MUST OBEY THE FOLLOWING RULES:
1	**DO NOT** leave the construction site untidy and strewn with rubbish that will attract animal pests.
2	**DO NOT** bring your pets to the construction site.
3	**DO NOT** trespass on private properties not linked to the project.
4	**DO NOT** carry a weapon on the construction site or in the vehicles transporting workers to and from the construction site.
5	**DO NOT** set fires unnecessarily.
6	**DO NOT** cause any unnecessary disturbing noise at the construction camp/site or at any designated worker collection/drop off points.
7	**DO NOT** drive a construction-related vehicle under the influence of alcohol.
8	**DO NOT** exceed the national speed limits on public roads or exceed the recommended speed limits in this management plan (where applicable) whilst driving a construction vehicle.
9	**DO NOT** drive a vehicle that is generating excessive noise (noisy vehicles must be reported and repaired as soon as possible).
10	**DO NOT** litter along the roadsides, including both public and private roads.

11	**DO NOT** remove or destroy vegetation at the construction camp/construction site without the prior consent of the Project Manager and Environmental Control Officer.
12	**DO NOT** tamper with, destroy or remove vegetation from any areas that have been fenced off or marked.
13	**DO NOT** pollute watercourses, whether flowing or not.

13 ACKNOWLEDGEMENT FORM

Record of signatures providing acknowledgment of being aware of and committed to complying with the contents of this Environmental Management Programme (EMPr), which relates to the environmental mitigation measures for the project outlined below, and the environmental conditions contained in the civil and other construction contract documents.

PROJECT NAME:

The proposed Upgrade and Development of Ngconco Access Road in Ward 11, Tugela Ferry.

DEVELOPER / PROPONENT:

Signed: …….. Date: …….....

PROJECT MANAGER:

Signed: …….. Date: …….....

CONTRACTOR:

Signed: …….. Date: …….....

ENVIRONMENTAL CONTROL OFFICER

Signed: …….. Date: …….....