

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED CONSTRUCTION OF MAGEZA SERVICE STATION (INGOGO) AND ASSOCIATED INFRASTRUCTURE AND RESTAURENT ON PORTION 9 OF THE FARM REDMAIN NO. 14492, INGOGO AREA AT NEWCASTLE, WITHIN NEWCASTLE LOCAL MUNICIPALITY IN KWAZULU – NATAL.

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

Report prepared for

MAGEZA COUNTRY ESTATE (INGOGO)

Prepared by

MONDLI CONSULTING SERVICES

P O Box 22536

Glenashley

4022

Tel 0826799841 / (031) 572 5647

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AS PER THE DRAFT BAR APPENDICES

A. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) WHO PREPARED THE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr):

1. (1) An EMPr must comply with section 24N of the Act and include -

(a) Details of -

(i) the EAP who prepared the report:

Business name of EAP:	Mondli Consulting Services		
Physical address:	6 Joseph Avenue, New Era House, Suite 12, Durban North		
Postal address:	P O Box 22536, Glenashley		
Postal code:	4022	Cell:	0826799841
Telephone:	0826799841	Fax:	(031) 5725647
E-mail:	mondlib@webmail.co.za		

(ii) The expertise of the EAP (including curriculum vitae)

Name of representative of the EAP	Education of qualifications	Professional affiliations	Experience at environmental assessments (years)
M. Mthembu	Diploma in Nature Conservation Masters Degree (Environmental Management Dissertation) Bachelor of Laws (LLB)	Society of South African Geographers (Membership No. 28/09)	Has been involved in environmental and conservation field for over 20 yrs. Conducted EIAs for over 15 years including Strategic Environmental Assessment. Has been involved in the review and commenting on development

			projects impacting on the environment.
SI Thwala	National Diploma in Analytical Chemistry & Bachelor of Science degree majoring in Geography and Computer Science. He has done many courses in environmental management.	None.	One-year experience in environmental monitoring, and inspection of environmental projects. Assisting in environmental assessment. Training in environmental management.

(B) A DETAILED DESCRIPTION OF THE ASPECTS OF THE ACTIVITY THAT ARE COVERED BY THE EMPr AS IDENTIFIED BY THE PROJECT DESCRIPTION;

The environmental management programme covers mainly aspects that directly relates to the construction of Mageza Service Station (Ingogo) including associated infrastructure comprising fuel storage tanks [2 x 46 000 litres ULP]: 2 x 46 000 litres diesel all underground, pumps, concrete slabbing, building on site comprising of office, convenience shop, restaurant, staffroom, kitchen and toilets. All buildings are single storey.

The EMPr covers aspects like environmental awareness, issues of spillage, soil erosion, soil and ground water contamination, vegetation and groundcover, solid waste, health and safety, stormwater and traffic issues including noise. These aspects are described and covered in detail throughout the EMPr.

(C) A MAP AT AN APPROPRIATE SCALE WHICH SUPERIMPOSES THE PROPOSED ACTIVITY, ITS ASSOCIATED STRUCTURES, AND INFRASTRUCTRE ON THE ENVIRONMENTAL SENSITIVITIES OF THE PREFERED SITE, INDICATING ANY AREAS THAT SHOULD BE AVOIDED, INCLUDING BUFFERES;

See the maps attached to the Draft Basic Assessment Report (Draft BAR).

(D) A DESCRIPTION OF THE IMPACT MANAGEMENT OBJECTIVES, INCLUDING MANAGEMENT STATEMENTS, IDENTIFYING THE IMPACTS AND RISKS THAT NEED TO BE AVOIDED, MANAGED AND MITIGATED AS IDENTIFIED THROUGH THE ENVIRONMENTAL IMPACT ASSESSMSNET PROCESS FOR ALL PHASES OF THE DEVELOPMENT INCLUDING -

The main aim and objective of the monitoring exercise is to ensure the appraisal of environmental performance in line with the Environmental Management Programme (EMPr), EIA Regulations and National Environmental Management Act (NEMA) No. 107 of 1998 as amended. The Department of Economic Development, Tourism and Environmental Affairs is responsible for ensuring compliance to NEMA. EMPr is also meant to provide objective feedback to Mageza Country Estate during project construction and beyond, by making appropriate recommendations for remedial interventions where appropriate.

The monitoring deals with conformance and non-conformance measured against the EMPr. Any non-compliance observed during the construction period will be followed by an immediate remedial intervention. The environmental audit and monitoring will primarily focus on evaluating the measure of compliance with statutory requirements within the project site.

The identified impacts and risks will be managed and mitigated throughout the following phases of development:

(i) planning and design;

Impact

Congestion and overcrowding by project technicians.

(ii) Pre-construction activities;

Environmental awareness and partnerships

Impact

Ignorance of the EMPr prescripts resulting in environmental degradation.

Impact

Ignorance about environmental issues resulting in degradation of the receiving environment.

(iii) construction activities;

(a) The storage facility

Impact

Environmental pollution that may result in soil contamination and environmental pollution in case of leakages and spills.

(b) Solid waste and littering

Impact

The possible pollution of the environment.

(c) Concrete mixing

Impact

Soil contamination.

(c) Chemical materials

Impact

Environmental pollution relating to soil and surface water.

(e) Management of water, sediments and stormwater

Impact

Soil erosion and surface water pollution.

(f) Air pollution

Impact

Air pollution and nuisance.

(g) Noise control

Impact

Noise pollution to the settlement, passing local people and passersby.

(h) Earthworks and Soil

Impact

Soil erosion and invader plant species growing after earthworks.

(i) Vegetation / Groundcover

Impact

Soil erosion.

(j) Health and safety

Impact

Unhealthy and unsafe environment.

(k) Construction camp

Impact

The unsuitable location can result in environmental degradation.

(l) Traffic Management

Impact

Traffic congestion and increase in the vicinity of the project site during construction.

(m) Heritage impact

Impact

Impact on heritage resources and places to which oral history is attached.

(n) Visual impact

Impact

Nuisance to the neighbouring households and the public.

(iv) rehabilitation of the environment after construction and where applicable post closure; and

(a) Clearing construction site

Impact

Environmental and site pollution.

(b) Signing off

Impact

Environmental pollution and degradation left on site after construction.

(c) Landscaping

Impact

Soil erosion.

Impact

Possibility of soil contamination.

(v) where relevant, operation activities;

Impact

Environmental pollution and possible degradation.

Impact

Ground water contamination

(F) A DESCRIPTION OF PROPOSED IMPACT MANAGEMENT ACTIONS, IDENTIFYING THE MANNER IN WHICH THE IMPACT MANAGEMENT OUTCOMES CONTEMPLATED IN PARAGRAPH (D) WILL BE ACHIVED, AND MUST, WHERE APPLICABLE, INCLUDE ACTIONS TO -

(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;

(i) planning and design;

How impact management outcomes will be achieved

The project planners are expected to be considerate and ensure that their activities are not detrimental to both social and physical environment. The environmentalist is already involved to ensure all designs reflect environmental principles.

The technicians working on site must be sensitized about possible environmental impacts, in order to be considerate at all times when working on site. Therefore, the Newcastle Local Municipality, Builder and the environmentalists and all affected stakeholders must be involved during this phase.

The project must ensure sustainable development in balancing social, economic and environmental aspects.

Responsible party

Applicant and the Environmental Control Officer (ECO).

(ii) Pre-construction activities;

Impact

Ignorance of the EMPr and EA principles; resulting in environmental degradation.

Environmental awareness and partnerships

How Impact management outcomes will be achieved

This EMPr will be discussed with all interested and affected parties and contractors to ensure that awareness of events and activities that have a negative impact on the environment are understood, and adhered to. This will be done by educating the stakeholders about the environment, and the crash course for the contractor. Compliance will be emphasized to the developer, and the Compliance section of EDTEA is also expected to do inspections, as they deem appropriate and necessary.

Responsible party

ECO and the Applicant

Impact

Ignorance about environmental issues resulting in degradation of the receiving environment.

How Impact management outcomes will be achieved

- The main contractor and relevant stakeholders will have to be familiar with the contents of the Environmental Management Programme (EMPr) to be able to comply with the aforementioned document during all project phases.
- The building contractor and all personnel that will be involved in the construction phase of this project will be taken through a crash course on environmental awareness and EMPr.

Responsible party

ECO and the Applicant

Impact

Noncompliance to the EMPr document; resulting in environmental degradation.

How Impact management outcomes will be achieved

- The EMPr will be signed by the contractor on site.
- All stakeholders including employees of the contractors on site need to be familiar with the contents of the EMPr and the construction protocol.
- The EMPr document must be available on site at all times, to ensure monitoring by organs of state with jurisdiction on site.
- This EMPr will be discussed with stakeholders to ensure that awareness of activities that have a negative impact on the environment are clarified.

Responsible party

ECO and the Applicant

(iii) construction activities;

(a) The storage facility during construction

Impact

Environmental pollution likely to result in soil contamination and environmental pollution in case of leakages and spillages.

How Impact management outcomes will be achieved

- This will be mitigated by constructing a storage facility that is roofed and properly paved to store all the contractor's tools and materials during construction phase.
- The storage facility will prevent direct sun which may cause certain materials to explode, and rain from flushing materials that may later contaminate the soil and surface water. The storage facility will also help in safe storage preventing accidental falling of uncontained materials and liquids that may not have been sealed safely.
- The liquid materials must be tightly closed and sealed to prevent spillage in case of accidental falling.
- The storage areas must be 150 metres away from the watercourse.
- The storage areas and stormwater drains will be over 10 metres away from the buildings on site and boundaries.
- The storage areas must be designated, demarcated and fenced in a secured manner.

Responsible party

Site Engineer or Builder / Contractor / Safety Officer / ECO.

(b) Solid waste and littering

Impact

The possible pollution of the environment resulting from litter and waste.

How Impact management outcomes will be achieved

- Solid waste must be disposed of at the nearest disposal site.
- Solid waste must be disposed of in an environmentally acceptable manner during construction to minimize pollution of the environment.
- Rubbish drums and refuse plastic bags will have to be made available for litter during the day, to be cleared and disposed of at the municipal disposal site at appropriate intervals as advised by the Environmental Control Officer.
- All construction spoil must be disposed of at the municipal disposal site.
- No burning of refuse must take place on site.

Responsible party

Site Engineer or Builder / Contractor and Applicant.

(c) Concrete mixing

Impact

Soil contamination.

How Impact management outcomes will be achieved

- All concrete mixing that is “not ready mixed” must be carried out on wooden boards in a lined bunded area so that cement slurry does not escape out of the area. This will also prevent contamination of the soil.
- At the end of each day's construction operations cement spoil and rubble must be collected and placed in appropriate containers for later disposal.

Responsible party

Site Engineer or Builder / Contractor.

(d) Chemical materials

Impact

Environmental pollution including soil and surface water.

How Impact management outcomes will be achieved

- Chemical materials like paint, turpentine, solvents, cement and the like must be stored appropriately in line with the provisions of Hazardous Substances Act (Act 15 of 1973).
- These must not be allowed to pose risk to the surrounding environment, and such storage areas must be located outside of the 1:100-year floodline of a river / watercourse or such storage must not be closer than 150 metres from the water course / river.
- Access to these areas must be controlled, and temporary bunds must be constructed around chemical or diesel storage areas to contain possible spillages.
- Any spill must be reported to the relevant authorities as soon as possible i.e. Newcastle Local Municipality, Amajuba District Municipality, Department of Water and Sanitation and the KZN Department of Economic Development, Tourism and Environmental Affairs.
- Oil leaks from heavy machinery and vehicles must not be allowed to contaminate soil and the environment. This must be done by properly servicing the machinery to prevent unnecessary oil leaks, as well as preventing any servicing of vehicles and machinery on site.
- In case of oil leak that contaminate the soil, such soil must be removed and disposed of appropriately as advised by the ECO.

Responsible party

Site Engineer or Builder / Contractor / ECO / Safety Officer.

(e) Management of water, sediments and stormwater

Impact

Soil erosion and ground water pollution.

How impact management outcomes will be achieved

- Stormwater must be in line with the design and adhere to all Engineers stipulations.
- Compilation of a Storm Water Management Plan (SWMP) and designs to the Engineer and Municipal specifications.
- It must incorporate pollution prevention measures such as grease / oil traps.
- On site attenuation must be in the form of rainwater harvesting tanks to be used for irrigation.
- Any soil stockpiles created are to be maintained as flat as possible, avoiding side slopes.
- Storm water leaving the premises shall not be polluted by any substance whether such a substance is a solid, liquid, gas vapour or any combination of these.
- After construction, the site must be graded or paved to ensure free flow of runoff and to prevent ponding of water.
- The design of the stormwater management system should ensure that accumulated surface water is collected and disposed of in a responsible manner.

Responsible party

Site Engineer or Builder / Contractor and the Applicant.

(f) Air pollution

Impact

Air pollution.

How impact management outcomes will be achieved

- It is important that the requirements of the atmospheric Pollution Prevention Act (APA) (Act No. 45 of 1965) and National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) be adhered to.
- Dust from the operations must be minimized by regularly spraying with water during construction.

Responsible party

The Applicant and the Contractor / Site Engineer.

(g) Noise control

Impact

Noise pollution to the settlement and passing local people.

Country

How impact management outcomes will be achieved

- Noise Control Regulations (Regulations 154, 10 January 1992) of the Environmental Conservation Act (Act No. 73 Of 1989) must be adhered to.
- Construction operations must be restricted to daylight period, Monday to Saturday, and must adhere to legally stipulated hours (7.00 – 18.00).
- The use of equipment that is less noisy must be encouraged.
- Workers using noisy equipment must be informed about the need to minimize noise and its impact on the general surrounding environment.
- The neighbouring households must be informed about noise possibilities.

Responsible party

The Applicant and Site Engineer or Builder / Contractor.

(h) Earthworks and Soil

Impact

Soil erosion.

How impact management outcomes will be achieved

- Soil generated during digging of trenches must be backfilled immediately or at least within 48 hours.
- All soil left after construction must be removed.
- No soil must be left in heaps after the construction.
- Any excessive soil that was unable to be used or backfilled will have to be taken to the municipal disposal site or disposed of in an environmentally acceptable manner as per the advice of an environmental control officer.
- It is recommended that all earthworks be carried out in accordance with SABS 1200 (current version).
- It is important that the site is prepared in a way to provide a suitable, level platform to accommodate the forecourt, buildings and appurtenant structures.
- Should fill embankments be required, the fills should be placed in layers not exceeding 200 mm loose thickness and compacted to a minimum of 95% Modified AASHTO maximum dry density. Any boulders or material larger than two-thirds of the layer thickness must not be included in the fill material. In addition, the fill material should be worked within 2% either side of the optimum moisture content to reduce the danger of heave of the material during compaction, which would make it difficult to attain the specified 95% degree of compaction.

Responsible party

- Site Engineer or Builder / Contractor and Applicant / ECO.

(i) Vegetation / Groundcover

Impact

Soil erosion.

How impact management outcomes will be achieved

- Planting of grass and ground cover.
- Should any area be left bare during construction, it must be planted with suitable ground cover to prevent possible soil erosion.
- It is critical to keep and maintain the grass cover after all earthworks operations.
- Landscaping has to be done on project completion.

Responsible party

The Applicant and ECO

(j) Health and Safety

Impact

Unhealthy and unsafe environment.

How impact management outcomes will be achieved

- All requirements of the Occupational Health and Safety Act (Act No. 85 of 1993) must be complied with.
- Compliance with Food Regulations R962 and Tobacco Control Act
- Compliance with all South African National Standards (SANS).
- Provision of mobile toilets placed some 150 metres away outside of the 1: 100-year floodline. These toilets must be regularly monitored on daily basis and sewerage sludge must be disposed of at a nearest registered Waste Water Treatment Works.
- Fire extinguishers must be kept at appropriate points, not only during construction phase, but even during operational phase for immediate action in case of fire.
- Assurance must be made that the staff on site are familiar with fire procedures, and the use of fire equipment.
- In line with Health Requirements the mobile toilets will have to be provided on site during construction, to cater for human excrement.
- Such toilet facilities must be located outside of the 1: 100-year floodline or, must not be placed closer than 150 metres from the water course / river. These toilets must be monitored on daily basis and sewerage sludge must be disposed of at a nearest registered Waste Water Treatment Works.
- The site will have to be kept clean and free of litter by continuously disposing waste at the municipal disposal site.

Responsible party

Site Engineer or Builder / Applicant and the Contractor.

(k) Construction camp

Impact

The unsuitable location is likely to result in environmental degradation and surface water pollution.

How impact management outcomes will be achieved

- Located at a distance of 150 metres away from any watercourse.
- As mentioned above adequate provision for sanitation must be made in the form of mobile toilets, to cater for human excrement from residents of the construction camp. These must be emptied on regular basis.

Responsible party

Site Engineer or Builder / Contractor and the Applicant.

(l) Traffic Management

Impact

Congestion and increased traffic flow.

How impact management outcomes will be achieved

- The recommendations of the Traffic Impact Assessment must be strictly adhered with.
- Vehicles must adhere to the speed limit of 40 kms per hour during construction.
- Construction vehicles must be properly marked with “construction vehicle” signs, and drivers must be given clear work instructions.
- No construction vehicles must obstruct entrances to any neighbouring properties.
- Pointsmen to be used to direct traffic flow to and from the site.

Responsible party

Site Engineer or Builder / Contractor.

(m) Heritage impact

Impact

Impact on heritage resources that may be identified during earthworks.

How impact management outcomes will be achieved

- Amafa must be contacted if any heritage objects are identified during earthmoving activities, and all development must cease until further notice.
- Amafa must be contacted if any graves or heritage objects are identified during construction and the following procedure is to be followed:

- Stop construction
- Report finding to local police station
- Report to Amafa to investigate
- No activities are allowed within 50 m of a site which contains rock art.
- Sources of all-natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt etc) must be obtained in a sustainable manner and in compliance with the heritage legislation.

Responsible party

Site Engineer or Builder / Contractor and the Applicant.

(n) Visual impact

Impact

Nuisance to the community.

How impact management outcomes will be achieved

- Stick to principles of sustainable development that avoids emotional environmental outcry.
- The project site must be shielded by a net during the construction phase.
- The project must avoid nuisance to the neighbouring properties and the public.

Responsible party

Site Engineer or Builder / Contractor. They must take care to reduce this impact, and avoid the emotional outcry associated with irresponsible development.

(iv) rehabilitation of the environment after construction and where applicable post closure; and

(a) Clearing construction site

Impact

Environmental and site pollution.

How impact management outcomes will be achieved

- Proper housekeeping.
- Once the construction phase is completed all material on site associated with construction must be removed from the property, and everything referred to, as waste must be disposed of at the municipal disposal site or landfill site as the case may be.
- No on site burning or burial of waste material must be done on site.

Responsible party

Contractor / ECO / Applicant

(b) Signing off

Impact

Environmental pollution and degradation left after construction.

How impact management outcomes will be achieved

- EMPr has to be signed off by the contractor on site.

Responsible party

Contractor / ECO

(c) Landscaping

Impact

Soil erosion.

How impact management outcomes will be achieved

- Landscaped area, planted with grass and ground cover.
- Eradication of invader evasive species on site.
- All bare areas must be planted with grass cover to minimize soil erosion

Responsible party

Applicant and ECO.

(d) Closure

Impact

There is a possibility of soil contamination, fire, soil erosion, noise and environmental pollution in case of decommissioning.

*How impact management outcomes will be achieved – **also see (P) below.***

- Contaminated soil must be cleaned, removed and disposed of at the nearest disposal site.

Responsible party

Applicant and the ECO.

(v) where relevant, operation activities;

(a) Spillage

Impact

- Environmental pollution and possible degradation.
- Soil and groundwater pollution / contamination.

How impact management outcomes will be achieved – for spillage, outcomes will be achieved through the facts mentioned below under Spillage.

- Standard operating procedure will deal with possible spillage.
- The underground storage tanks will be in compliance with the relevant SANS / SABS code of practice.
- The leak detection system will be accordingly installed.
- The plastic sheet below the tanks will be installed as a preventative measure in case of a leak.
- Refueling areas must be bunded with impermeable liner to prevent pollution caused by spillage
- Material Data Safety Sheets (MSDS's) must be readily available on site for all chemicals and hazardous substances to be used on site.
- MSDS's must include information on ground water contamination, ecological impacts and measures to minimize negative environmental impacts during accidental releases.
- Procedure for the management of oil spills:
 - Identify the spill and the volume of contamination.
 - Collect spill kit.
 - Barricade contaminated area.
 - Use cones and spill kit bins.
 - Contain spill by using PEAT and SORB cushion (PEAT and SORB are environmentally friendly oil absorbent products / fine material suitable for most spills).
 - PEAT SORB pads can be used to absorb spill.
 - Wear gloves to protect your hand should they come into contact with contaminated area.
 - Wear goggles to minimize the effect of wind.
 - Spread loose PEAT SORB over the contaminated area in a uniformed manner.
 - The whole contaminated area must be covered with PEAT SORB.
 - Collect all absorbed PEAT SORB contaminated product.
 - Put it in a high-density disposable bag provided with a spill kit.
 - Close the open end of the disposable bag with a tie down.
 - Store disposable bags separately.
 - Dispose of the bag through an agreed upon disposal method.
 - The area would still have the stain but the hazard would have been removed.

Most petroleum companies have well-established procedure to follow in the event of a spill (oil, fuel or other), like acting immediately on receiving information, which includes:

- ◆ The time date and location of the spill.
 - ◆ Estimation of the volume of product involved in litres.
 - ◆ The type of product involved.
 - ◆ Any other pertinent information
- Any significant spillage of oil or fuel must be reported to the Department of Water and Sanitation (Durban Office).
 - The spill contingency plan will be kept handy and put in operation whenever the need arises. These should include the following actions:
 - Stop the source of the spill
 - Contain the spill
 - All significant spills must be reported to the Department of Water and Sanitation and other relevant authorities
 - Remove the spilled product for treatment or authorized disposal
 - Determine any environmental impact
 - Remedial action to be taken together with Water and Sanitation.
 - Incident must be documented
 - The plan will be kept at Mageza Service Station's premises.
 - The incident is recorded and properly investigated to establish the cause of the spill in order to prevent re occurrence.

The following spillage prevention measures are to be taken into account as normally recommended by the Department of Economic Development, Tourism and Environmental Affairs.

- Overfill protection devices in the tank filling system, including emergency cuts - off devices where appropriate.
- Automatic emergency cut - off devices on dispensers.
- Use of drip trays when connecting and disconnecting to road tanker discharge points.
- Bunding of fill points such that the contents of a full delivery horse can be contained.
- Dispensing pumps should be such that they are able to accommodate spillage in the case of an accidental leak, preventing the spill from leaking to the sub surface.

The spillage plan and mitigation measures thereof are the responsibility of the applicant, in consultation with all the other stakeholders as highlighted above.

Fuel Station Complex

- The area where the tanks are situated must be on the appropriate slope, and dispensing pumps area covered in concrete.
- The dispensing pumps must be under the roofed area.

Storm water management in relation to possible pollution and spillage

- Storm water leaving the premises shall not be polluted by any substance whether such a substance is a solid, liquid, gas vapour or any combination of these.

- There must be no mixing of contaminated and uncontaminated water and treatment of contaminated water.
- Clean storm water must be separated from contaminated storm water.
- Storm water, petrol, diesel and other polluted run-off must be directed to the containment sump of appropriate design.
- The building will ensure proper storm water channelling in line with Municipal engineering requirements. The water flow from the site will be accordingly directed to the storm water channels away from the site.
- The Municipality must be contacted with regard with any discharges to the stormwater drainage system or sewer system.

Management of possible spillages with regard to the following:

(1) Underground storage tanks (UGST's)

The fuel storage and reticulation pipe work must be done in accordance with SABS 0400:1990 Codes of Practice applicable to Fuel Storage Installations.

- ◆ The tank pit must be lined with a heavy-duty HDPE liner and only free draining granular fill must be used to backfill this excavation.
- ◆ The base of the tank pit must be V-shaped and graded to a sump to allow collection of any hydrocarbon product leaking from filler and dip point manholes.
- ◆ Tank pit monitoring wells must be installed down into the base of the tank pit within the liner to check for any hydrocarbon leaks or subsoil spillage.
- ◆ A concrete cover slab must be cast over the tank pit area to protect the UGST's. This slab must be dish shaped to capture any surface fuel spillage and contaminated run-off.
- ◆ The stormwater generated on the forecourt area, tank pit area and fuel fillers must be captured in a grid drain linked to a sealed separator system, to prevent contamination from accidental spillages overflowing, as this might migrate into the down gradient streamline.
- ◆ The separator system must be monitored and cleared regularly to prevent free-phase hydrocarbon liquids from discharging off site.

The Underground Storage Tanks must comply with the relevant SANS/SABS Codes of Practice which include: (These are prescribed by the Department of Water and Sanitation)

- ◆ SANS 10400 TT 53 (Section 1-6)
- ◆ SANS 10131
- ◆ SANS 10108
- ◆ SANS 11535
- ◆ The UST is to be inspected before installation for damage and repair to be done according to SABS 1535 (Class – reinforced polyester coated steel tanks, including jacketed tanks, for the underground storage of hydrocarbons and oxygenated solvents and intended for burial horizontally).
- ◆ SANS 10089 Parts 2 & 3 which requires:
 - The installation of a leak detection system including observation and monitoring wells situated around the tank to facilitate early warning that a leak has arisen.

- The provision of a plastic sheet below the tank that slopes towards an observation well.
- Installation of leak detectors on pressure systems.
- ◆ The UGST must be dipped daily and reconciled against volume to check for losses due to leakage.
- ◆ The tanks and product lines must be pressure tested prior to commissioning.
- ◆ The installation must comply with the District Municipality requirements as outlined by them i.e. all construction involved in the laying of the tanks is to be undertaken in consultation with the relevant Municipal authority and in compliance with its requirements and any applicable legislation.

(2) Fuel reticulation pipe work and tanks

- All pipework is installed on non-cohesive drainage material in reverse graded trenches, to ensure that any lost product will drain back to the tank pit.
- Overfill protectors must be installed on all Underground Storage Tanks (UGST's).
- All filler and dip point manholes need to be properly sealed and cleaned out regularly to prevent accumulation of hydrocarbon product in containment structures.
- The forecourt need to be concrete paved and dish shaped to ensure any spill during operations, and contaminated wash water is collected by grid drains linked to the separator system.
 - ◆ The new tank installations will meet the design criteria of SABS for underground fuel tank installations.
 - ◆ All equipment used will be SABS compliant.
 - ◆ The steel tanks must have double epoxy coating and be contained in a concrete lined and bunded chamber.
 - ◆ Pipes must be accessible by way of manholes to allow inspections, and ground water monitoring equipment should be placed around the tanks as a way of sampling ground water so that any leak can be detected immediately.
 - ◆ The tanks will be covered appropriately with concrete.
 - ◆ Concrete slabbing must go beyond the pumps space to provide an extended surface spill containment area. This will have to be inspected annually to ensure the continuous integrity of the covering concrete slab.
 - ◆ Integrity of tanks and pipes should be checked on regular basis.
 - ◆ Soils in the vicinity of the tanks are to be tested for emission vapors, including VOC's and benzene concentrations on a regular basis.

It is customary for the compliance certificate to be issued by petroleum companies on completion of all installations to the relevant Department at reasonable time period after completion.

(3) Management of water, sediments and stormwater in relation to the storage tanks and pipework

- The stormwater will therefore be channelled in an appropriate direction to connect up to the disposal point.
- The plan will be submitted to Newcastle Local Municipality for approval prior to construction commencing. This will be lodged together with building plans for

proper alignment with existing municipal stormwater plans approved by municipal engineers.

- The building will ensure proper storm water channelling in line with Municipal engineering requirements. The water flow from the site will be accordingly directed to the storm water channels away from the site.
- The washwater will be channelled appropriately.
- Designs for the “oil separation sumps” to accommodate waste water and stormwater generated by the forecourt must be submitted to and approved by Newcastle Municipality prior to construction commencing.
- Long term management of the sumps including cleaning and maintenance is important with a safety officer responsible for monitoring.
- The Newcastle Local Municipality's storm water plans and designs must be complied with, and these must be in line with the Project Engineer's specifications.
- Storm water leaving the premises shall not be polluted by any substance whether such a substance is a solid, liquid, gas vapour or any combination of these.
- All water related services should not leak, and no water should be allowed to pond against the building's external walls.

(4) Reporting leaks

- It is crucial that leaks be reported immediately.

(5) Measurement and monitoring procedures

Slow leakage from underground tanks containing liquid stocks can be detected through measurements and reconciliation procedures.

- One "hands on" and practical way of detecting leaks is through stock management system.
- By regular fuel reconciliation to guard against product loss.
- Dipstick reading will be done on daily basis to establish any discrepancy between recorded and actual stock.
- A pattern will be established to monitor any unusual product loss. Major discrepancies and unusual patterns are indicative of uncontrolled product loss of which a leak can be one possibility.
- The developer must keep proper and accurate records of fuel sales and deliveries, dip the UGST's at the end of each shift, and regular fuel reconciliation to guard against product losses.
- Site Manager need to be present during fuel deliveries to oversee that there is no overfilling resulting in hydrocarbon spills. The driver needs to dip the tanks before delivery and replace the dip cap before starting the fuel transfer.

(6) Obtaining evidence

- Whenever a discrepancy is suspected the stock will be checked immediately to ascertain whether the stock is real or there was an error in recording.
- Abnormal water amounts will be checked, as water cannot enter tanks lying above the water table.
- Excessive water is indicative of the problem that needs to be attended to immediately.

- The information and control system will be such that it's accurate and easy to establish a pattern to be able to pick up unusual changes, which might be leaks.

(7) Reporting of the spill

- In the event of a spill the law dictates that certain authorities be informed immediately i.e. DWS, EDTEA, Newcastle Local Municipality and Amajuba District Municipality i.e. relevant municipal officials like Chief Fire, Chief Civil Protection and Disaster Management section.
- A "Vacusonic" test on the installation will be done to establish the exact site of the leak.
- Check environmental damage where there have been real leaks.

The applicant and all relevant authorities are responsible for the points mentioned above.

(b) Solid waste

Impact

Environmental pollution and possible degradation.

How impact management outcomes will be achieved

- To ensure that the Waste Management plan is in place.
- The facility has to provide at least 240 litre bins on site to be emptied and collected by Newcastle Local Municipality at least once a week.
- Solid waste generated from this facility should be disposed of in an appropriate manner at the municipal landfill site.
- Contaminated materials must be disposed of at a permitted hazardous landfill site.
- Chemical waste must be stored in appropriate containers, and disposed of appropriately at a permitted landfill site which is authorized to accept the said material.

(c) Health and safety

Impact

Unhealthy and unsafe environment.

How impact management outcomes will be achieved

- By ensuring Health and Safety plan is in place.
- By ensuring training on health and safety issues.
- Fire extinguishers must be kept at appropriate points during operational phase.
- Assurance must be made that the staff on site are familiar with fire procedures, and use of fire equipment.
- By ensuring proper housekeeping during operational phase.
- By ensuring proper location of septic tanks on site.

Where applicable include actions to:

(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;

As above

(ii) *comply with any prescribed environmental management standards or practices;*

As above.

(iii) *comply with any applicable provisions of the Act regarding closure, where applicable; and*

In case of closure the activity must be reported to the Department of Economic Development, Tourism and Environmental Affairs, Local Authorities, Department of Energy and such closure needs monitoring by an environmentalist as outlined above.

(iv) *comply with any provisions of the Act regarding financial provisions for rehabilitation; where applicable;*

Issues of rehabilitation on site will be done by Mageza Country Estate.

(G) THE METHOD OF MONITORING THE IMPLEMENTATION OF THE IMPACT MANAGEMENT ACTIONS CONTEMPLATED IN PARAGRAPH (F);***(i) planning and design;***

Method of monitoring the implementation of impact management

Compilation of monthly reports.

(ii) Pre-construction activities;**Environmental awareness and partnerships**

Method of monitoring the implementation of impact management

Monthly reporting to the project committee.

Impact

Ignorance about environmental issues resulting in degradation of the receiving environment.

Method of monitoring the implementation of impact management

- Monitoring environmental performance against the Environmental Management Programme (EMPr) posted on the notice board inside the construction office.

(iii) construction activities;

(a) The storage facility*Impact*

Environmental pollution likely to result in soil contamination and environmental pollution in case of leakages and spills.

Method of monitoring the implementation of impact management

- Monthly reporting and site photographs.

(b) Solid waste and littering*Impact*

The possible pollution of the environment and water due to litter and waste.

Method of monitoring the implementation of impact management

- Monthly reporting and proof of disposal receipts from the landfill site.

(c) Concrete mixing*Impact*

Soil contamination.

Method of monitoring the implementation of impact management

- Monthly reporting and inspections.

(d) Chemical materials*Impact*

Environmental pollution including soil and water.

Method of monitoring the implementation of impact management

- Monthly reporting and Safety Officer reports.

(e) Management of water, sediments and stormwater*Impact*

Soil erosion and water pollution.

Method of monitoring the implementation of impact management

- Monthly reporting.

(f) Air pollution

Impact

Air pollution.

Method of monitoring the implementation of impact management

- Site inspection and monthly reporting.

(g) Noise control

Impact

Noise pollution to the village / settlement and passing local people.

Method of monitoring the implementation of impact management

- Monthly reporting and information from the local leaders and community.

(h) Earthworks and Soil

Impact

Soil erosion and sedimentation.

Method of monitoring the implementation of impact management

- Site inspection and monthly reporting.

(i) Vegetation / Groundcover

Impact

Soil erosion.

Method of monitoring the implementation of impact management

- Site inspection and photographs.

(j) Health and safety

Impact

Unhealthy and unsafe environment.

Method of monitoring the implementation of impact management

- Monthly reporting, inspection and safety officer reports.

(k) Construction camp

Impact

The unsuitable location is likely to result in environmental degradation.

Method of monitoring the implementation of impact management

- Site inspection.

(l) Traffic Management

Impact

Congestion caused by delivery trucks.

Method of monitoring the implementation of impact management

- Site inspection and monthly reporting

(m) Heritage impact

Impact

Impact on heritage resources that may be identified during earthworks.

Method of monitoring the implementation of impact management

- Site inspection, monthly reporting done in line with the recommendations of Amafa AkwaZulu-Natali.

(n) Visual impact

Impact

Nuisance to the community.

Method of monitoring the implementation of impact management

- Site inspection and monthly reporting.

(iv) rehabilitation of the environment after construction and where applicable post closure; and

(a) Clearing construction site

Impact

Environmental and site pollution.

Method of monitoring the implementation of impact management

- Site inspection and monthly reporting.

(b) Signing off

Impact

Environmental pollution and degradation left behind after construction.

Method of monitoring the implementation of impact management

- Site inspection and reporting.

(c) Landscaping

Impact

Soil erosion.

Method of monitoring the implementation of impact management

- Site inspection and photographs.

Impact

Possibility of soil contamination.

Method of monitoring the implementation of impact management

- Site inspection, photographs and reporting.

(v) where relevant, operation activities;

(a) Spillage

Impact

Environmental pollution and possible degradation.

Method of monitoring the implementation of impact management

- Site inspection, photographs and reporting.
- As highlighted under (F)(v)(a) above.

(b) Solid waste

Impact

Environmental pollution and possible degradation.

Method of monitoring the implementation of impact management

- Correct waste disposal method.

(c) Health and safety

Impact

Unhealthy and unsafe environment.

Method of monitoring the implementation of impact management

- Sticking to OHS procedures.

(d) Measurement and monitoring procedures

Impact

Soil and groundwater pollution.

Method of monitoring the implementation of impact management

- Regular site inspection and reporting

(e) Obtaining evidence

Impact

Soil and groundwater pollution.

Method of monitoring the implementation of impact management

- Regular inspection and recording.

Where applicable include actions to:

(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;

(ii) comply with any prescribed environmental management standards or practices;

- As above.

(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and

- Reporting to the Department of Economic Development, Tourism and Environmental Affairs.

(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation; where applicable;

Removal of any invader alien plants in line with legal requirements. The applicant and the asset owner has an obligation to eradicate alien invader species that may infest the area after the earthworks on site. The Department of Economic Development, Tourism and Environmental Affairs is empowered to request this eradication programme as provided in the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), as well as the Alien and Invasive Species Regulations dated 2014.

(H) THE FREQUENCY OF MONITORING THE IMPLEMENTATION OF THE IMPACT MANAGEMENT ACTIONS CONTEMPLATED IN PARAGRAPH (F);

The method of monitoring the implementation of the impact management actions contemplated under (F) above. The monitoring for all the impacts will be done on monthly basis through monthly reporting, and project meetings.

(I) AN INDICATION OF PERSONS WHO WILL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE IMPACT MANAGEMENT ACTIONS;

Responsible persons:

- ◆ Mondli Consulting Services (Environmental Control Officer) – overall responsibility of environmental reporting, training and awareness and the overseer of the implementation of the whole EMPr.
- ◆ Contractor / Site Engineer or Builder – responsible for all engineering or building related work on site, and project implementation.
- ◆ Mageza Country Estate – ensure adherence to the EMPr.
- ◆ EDTEA (Compliance Section) – inspections.

(J) THE TIME PERIODS WITH WHICH THE IMPACT MANAGEMENT ACTIONS CONTEMPLATED IN PARAGRAPH (F) MUST BE IMPLEMENTED;

(i) planning and design;

Time periods of implementation

Planning and commencement phase of the project.

(ii) Pre-construction activities;

Environmental awareness and partnerships

Time periods of implementation

Immediately after the issuing of the Permit by the Department of Energy.

Impact

Ignorance about environmental issues resulting in degradation of the receiving environment.

Time periods of implementation

- Immediately after the issue of the Permit by the Department of Energy.

(iii) construction activities;

(a) The storage facility

Impact

Environmental pollution that is likely to result in soil contamination and environmental pollution in case of leakages and spills.

Time periods of implementation

- For the duration of construction period.

(b) Solid waste and littering

Impact

The possible pollution of the environment.

Time periods of implementation

- For the duration of both construction and operational periods.

(c) Concrete mixing

Impact

Soil contamination.

Time periods of implementation

- During the concrete / construction phase of the project.

(d) Chemical materials*Impact*

Environmental pollution including soil and water.

Time periods of implementation

- For the duration of the project phase.

(e) Management of water, sediments and stormwater*Impact*

Soil erosion and water pollution.

Time periods of implementation

- For the duration of the project and beyond.

(f) Air pollution*Impact*

Air pollution.

Time periods of implementation

- For the duration of the project.

(g) Noise control*Impact*

Noise pollution to the settlement, neighbouring properties and passing local people.

Time periods of implementation

- For the duration of the project construction phase.

(h) Earthworks and Soil*Impact*

Soil erosion.

Time periods of implementation

- During the earthworks and construction phases of the project.

(i) Vegetation / Groundcover

Impact

Soil erosion.

Time periods of implementation

- On project completion.

(j) Health and safety

Impact

Unhealthy and unsafe environment.

Time periods of implementation

- For the duration of the project and beyond.

(k) Construction camp

Impact

The unsuitable location is likely to result in environmental degradation.

Time periods of implementation

- During the project set up on site.

(l) Traffic Management

Impact

Congestion and increased traffic flow.

Time periods of implementation

- For the duration of the project

(m) Heritage impact

Impact

Impact on heritage objects that may be identified during earthworks.

Time periods of implementation

- For the duration of the project.

(n) Visual impact*Impact*

Nuisance to the community.

Time periods of implementation

- For the duration of the project.

(iv) rehabilitation of the environment after construction and where applicable post closure; and**(a) Clearing construction site***Impact*

Environmental and site pollution.

Time periods of implementation

- During project completion phase.

(b) Signing off*Impact*

Environmental pollution and degradation left behind after construction.

Time periods of implementation

- On project completion.

(c) Landscaping*Impact*

Soil erosion.

Time periods of implementation

- On project completion.

Impact

Possibility of soil contamination.

Time periods of implementation

- For the duration of the project

(v) where relevant, operation activities;

(a) Spillage

Impact

Environmental pollution and possible degradation.

Time periods of implementation

- For the duration of the project and beyond.

(b) Solid waste

Impact

Environmental pollution and possible degradation.

Time periods of implementation

- For the duration of the project and beyond.

(c) Health and safety

Impact

Unhealthy and unsafe environment.

Time periods of implementation

- For the duration of the project and beyond.

(d) Measurement and monitoring procedures

Impact

Soil and groundwater pollution.

Time periods of implementation

- For the duration of the project and beyond.

(e) Obtaining evidence

Impact

Soil and groundwater pollution.

Time periods of implementation

- During operational phase and beyond.

Where applicable include actions to:

(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;

As above.

(ii) comply with any prescribed environmental management standards or practices;

- As above.

(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and

- Reporting to the Department of Economic Development, Tourism and Environmental Affairs on project completion.

(iv) comply with any provisions of the Act regarding financial provisions for rehabilitation; where applicable;

- Monitoring after project completion.

(K) THE MECHANISM FOR MONITORING COMPLIANCE WITH THE IMPACT MANAGEMENT ACTIONS CONTEMPLATED IN PARAGRAPH (F);

Monitoring and Auditing

- The Environmental Control Officer (Mondli Consulting Services) will monitor project implementation and do environmental reporting.
- The main contractor / Site Engineer or Builder will ensure adherence to set technical specifications through project meetings.
- The planting of grass and landscaping will be supervised by the environmental control officer.
- The Department of Economic Development, Tourism and Environmental Affairs (Compliance Section) will do inspections as deemed appropriate.

(L) A PROGRAM FOR REPORTING ON COMPLIANCE, TAKING INTO ACCOUNT THE REQUIREMENTS AS PRESCRIBED BY THE REGULATIONS;

- Monthly report.
- Project meetings.
- Auditing.
- Reporting as per the Petroleum Products Act, 1977 (Act No. 120 of 1977).

(M) AN ENVIRONMENT AWARENESS PLAN DESCRIBING THE MANNER IN WHICH -

(i) the applicant intends to inform his or her employees of any environmental risk which is likely to result from their work; and

- This will be done through a short half a day environmental course.
- Employees will be taken through the EMPr.

(ii) risks must be dealt with in order to avoid pollution or degradation of the environment; and

- There must be full compliance with all other relevant legislation relating to the handling and storage of hazardous material, occupational health, safety and pollution. A course will be arranged in this regard.

(N) ANY SPECIFIC INFORMATION THAT MAY BE REQUIRED BY THE COMPETENT AUTHORITY

None.

(O) OPERATIONAL PHASE

At the commencement of operational phase, the Environmental Control Office (ECO) will audit the facility using this Environmental Management Programme (EMPr). It is recommended that the Facility be audited six weeks after construction completion, to ensure that the site is in an environmentally acceptable state.

Environmental impact	Responsibility	Occurrence / Time periods of implementation	Method of monitoring
<p><i>Waste management</i></p> <ul style="list-style-type: none"> ▪ The storage of waste before disposal to the landfill site must be done in a responsible manner. ▪ The facility must provide at least 240 litre bins on site to be emptied and collected by eThekwini 	Mageza Country Estate	Ongoing	Compliance monitoring, Correct disposal methods.

<p>Municipality at least once a week or alternatively a private waste management service provider can be engaged for waste disposal at the landfill site.</p> <ul style="list-style-type: none"> ▪ Since recycling will be encouraged by the project, this must be implemented in an environmentally friendly manner. ▪ To ensure that the Waste Management plan is in place. ▪ Solid waste generated from this facility should be disposed of in an appropriate manner at the municipal landfill site. ▪ Contaminated materials must be disposed of at a permitted hazardous landfill site. ▪ Chemical waste must be stored in appropriate containers, and disposed of appropriately at a permitted landfill site which is 			
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authorized to accept hazardous waste.			
<p>Stormwater Management & ground water</p> <ul style="list-style-type: none"> ▪ Continuous implementation of the stormwater plan. ▪ After construction, the site must be graded or paved to ensure free flow of runoff and to prevent ponding of water. 	Mageza Country Estate	Ongoing	Site inspection and Compliance monitoring.
<p>Soil erosion</p> <ul style="list-style-type: none"> ▪ All bare areas must be planted with ground cover to minimise soil erosion. ▪ Stormwater plan must be implemented as recommended. 	Mageza Country Estate	Ongoing	Site inspection.
<p>Vegetation (alien plants)</p> <ul style="list-style-type: none"> ▪ The eradication of alien plants programme must be implemented. 	Mageza Country Estate / ECO	Ongoing	Site inspection

<p>Health and Safety</p> <ul style="list-style-type: none"> ▪ Visible warning signs must be erected on site. ▪ Training of employees on safety and health issues must be prioritised. ▪ Assurance must be made that the staff on site are familiar with fire procedures, and use of fire equipment. ▪ Fire extinguishers must be kept at appropriate points during this phase. ▪ By ensuring Health and Safety plan is in place. ▪ By ensuring proper housekeeping during operational phase. 	Mageza Country Estate / Safety Officer	Ongoing	<ul style="list-style-type: none"> ▪ Compliance monitoring / Sticking to OHS procedures. ▪ Site inspections.
<p>Dust</p> <ul style="list-style-type: none"> ▪ Dust particles from cement. 	Mageza Country Estate / Safety Officer	Ongoing	Compliance monitoring
<p>Traffic</p> <ul style="list-style-type: none"> ▪ Vehicles must be restricted to demarcated areas. 	Mageza Country Estate	Ongoing	Site inspection.
<p>Chemicals and spillages</p> <ul style="list-style-type: none"> ▪ The quantities stored on site must be 	Mageza Country Estate / Safety Officer	Ongoing	Compliance monitoring, site inspection, reporting and photographs.

<p>appropriately handled.</p> <ul style="list-style-type: none"> ▪ Spillage must be prevented at all cost. ▪ The accidental spillage must be cleaned up immediately. 			
<p>Storage facilities</p> <ul style="list-style-type: none"> ▪ These must be suitably located and kept tidy. ▪ Equipment and chemicals must be marked and correctly stored on site. 	Mageza Country Estate / Safety Officer	Ongoing	Compliance monitoring / Site inspection.
<p>Noise</p> <ul style="list-style-type: none"> ▪ All equipment must be properly maintained to minimise unnecessary noise. 	Mageza Country Estate	Ongoing	Compliance monitoring

(P) DECOMMISSIONING PHASE

If decommissioning becomes the best option the Department of Economic Development, Tourism and Environmental Affairs has to be informed of this option.

Decommissioning must be done such that it does not pose any danger to potential damage to human life, property and the environment. This must have no adverse impact on the environment. It must therefore be done in the presence of the ECO.

In an unlikely event of decommissioning the following will have to be observed:

- Decommissioning must be done in line with the stipulated procedure; under the supervision of the ECO and full knowledge of the Department of Economic Development, Tourism and Environmental Affairs should the facility be decommissioned.
- A written notice would have to be submitted to EDTEA with a rehabilitation plan.
- Soil will have to be backfilled immediately after the removal of storage tanks.
- Any signs of soil erosion must be addressed during and after the decommissioning phase.
- Contaminated material must be cleaned, removed and disposed of at the nearest landfill site.
- The area must be cordoned off with a danger tape and “no smoking” signs conspicuously displayed around the site during decommissioning.

- Any fuel inside the tanks must be removed, and the tanks degassed.
- All services equipment must be mapped e.g. electrical pipes, stormwater and water pipes to avoid damage.
- Contaminated soil after laboratory tests must be stockpiled and disposed of at the nearest landfill site capable of handling that particular soil.

(Q) CONCLUSION

According to the National Environmental Management Act, 1998 everyone must take reasonable measures to ensure that they do not pollute the environment. In this regard the reasonable measures will include informing and educating employees about environmental risks of their activities and instil a sense of environmental consciousness.

It is therefore, crucial that all recommendations are adopted and effected to the letter during all phases of this development as part of the mitigation measures. It must also be kept in mind that the Environmental Management Programme is a live document, that need adjustment as the need arise, as long as such changes are in the interest of the environment.