


# **Environmental Management Programme (EMPr)**

**FINAL BASIC ASSESSMENT FOR ENVIRONMENTAL  
AUTHORISATION FOR THE DEVELOPMENT OF A  
PROPOSED BUS AND TAXI HOLDING AREA;  
INCLUDING A FILLING STATION AND ASSOCIATED  
INFRASTRUCTURE ON ERVEN, 3781, 3780, 710, 602  
AND 600, MAFIKENG, NORTH WEST PROVINCE**

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## TERMS AND ABBREVIATIONS

**Audit** - regular inspection and verification of construction activities for implementation of the EMPr

**Bund** - enclosure under / around a storage facility to contain any spillage.

**Batch plant** - a concrete or plaster mixing facility and associated equipment and materials.

**Contractor** - the principal persons / company undertaking the construction of the development

**Developer** - The developer is the same person as the applicant or the client.

**Development site** - boundary and extent of development works and infrastructure.

**Engineer** - A person who represents the client and is responsible for enforcing the technical and contractual requirements of the project.

**ECO** - Environmental Site Agent: - Person responsible to applicant tasked with implementing and controlling the environmental requirements during construction.

**RE** – Resident Engineer: - Represents the Engineer on site

## DEFINITIONS

**Emergency situation** – An incident, which potentially has the ability to significantly impact on the environment, and which, could cause irreparable damage to sensitive environmental features. Typical situations entails amongst others the:

- Spill of petroleum products and lubricants onto eco systems;
- Potential event of impeding the continuous flow of water to downstream water users dependant on the flow; and
- Dangerous situation where livestock and small children can be injured by any activity emanating from the construction or rehabilitation of the project implementation.

**Alien Vegetation:** alien vegetation is defined as undesirable plant growth which shall include, but not be limited to; all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to be alien shall be those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

**Aspect:** Element of an organisation's activities, products or services that can interact with the environment.

**Auditing:** A systematic, documented, periodic and objective evaluation of how well the environmental management plan is being implemented and is performing with the aim of helping to safeguard the environment by: facilitating management control which would include meeting regulatory requirements. Results of the audit help the organisation to improve its environmental policies and management systems.

**Built Environment:** Physical surroundings created by human activity, e.g. buildings, houses, roads, bridges and harbours

**Contamination:** Polluting or making something impure.

**Corrective (or remedial) action:** Response required addressing an environmental problem that is in conflict with the requirements of the EMPr. The need for corrective action may be determined through monitoring, audits or management review.

**Degradation:** The lowering of the quality of the environment through human activities, e.g. river degradation, soil degradation.

**Ecology:** The scientific study of the relationship between living things (animals, plants and humans) and their environment.

**Ecosystem:** The relationship and interaction between plants, animals and the non-living environment.

**Environment:** environment means the surroundings within which humans exist and that could be made up of –

- The land, water and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of (i) and (ii) and the interrelationships among and between them; and
- The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

**Environmental aspect:** an environmental aspect is any component of a contractor's construction activity that is likely to interact with the environment.

**Environmental impact:** an impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

**Environmental Authorisation:** an environmental authorisation is a written statement from the Department of Economic, Development, Environment, Conservation and Tourism (DEDECT) that records its approval of a planned undertaking to improve, upgrade or rehabilitate and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

**General waste:** Waste that does not pose an immediate hazard or threat to health or the environment, and includes domestic waste, building and demolition waste, business waste and inert waste.

**Hazardous waste:** Waste, even in small amounts that can cause damage to plants, animals, their habitat and the well-being of human beings, e.g. waste from factories, detergents, pesticides, hydrocarbons, etc.

**Health care risk waste:** Waste generated from health care activities that are hazardous and includes laboratory, anatomical, genotoxic/cytotoxic, infectious, sharps, sanitary, nappy, low-level radioactive and pharmaceutical waste.







**Land use:** The use of land for human activities, e.g. residential, commercial, industrial use.

**Mitigation:** Measures designed to avoid, reduce or remedy adverse impacts













# 1 INTRODUCTION AND BACKGROUND

## 1.1. Scope

**Environmental Management Group (EMG)** (Pty) Ltd, was appointed by the **JM Professional Services CC** on behalf of the Mahikeng Local Municipality, as the independent Environmental Assessment Practitioner (EAP) to compile the EMPr under the National Environmental Management Act (No.107 of 1998) for the proposed bus and taxi holding area including a filling station and associated infrastructure. In terms of the special conditions of the contract (specifications) the EMPr must include the following:

-  Details of the EAP (Refer to Page ii of this document)
-  Purpose of the EMPr
-  Legal requirements
-  Management of possible impacts
-  Institutional arrangements
-  EMPr operational & implementation procedures

This document is compiled in accordance with the Integrated Environmental Management (IEM) philosophy which aims to achieve a desirable balance between conservation and development. IEM is a key instrument of the National Environmental Management Act [NEMA] (Act No. 107 of 1998). NEMA promotes the integrated environmental management of activities that may have a significant effect on the environment, while IEM prescribes a methodology for ensuring that environmental management principles are fully integrated into all stages of the development process. It advocates the use of several environmental management tools that are appropriate for the various levels of decision-making. One such tool is an EMPr. The IEM guidelines encourage a proactive approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM are that there be:

-  informed decision-making;
-  accountability for information on which decisions are taken;
-  accountability for decisions taken;
-  a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components);
-  an open, participatory approach in the planning of proposals;
-  consultation with interested and affected parties;
-  due consideration of alternative options;
-  an attempt to mitigate negative impacts and enhance positive aspects of proposals;
-  an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a result of the actions of the developers);
-  democratic regard for individual rights and obligations;
-  compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from 'cradle to grave');
-  and the opportunity for public and specialist input in the decision-making process.

The Environmental Impact Assessment Regulations that took effect in December 2014 regulate the procedures and criteria for the submission, processing, consideration and decision on applications for environmental authorisation of listed activities.















The general principles contained within this document apply to all **planning phase**, **construction phase**, and **operational phase** activities regarding the proposed development.

## 1.2. Overall project background and description

**JM Professional Services CC** appointed **Environmental Management Group (Pty) Ltd** to compile the Environmental Management Programme (EMPr) on behalf of the Mahikeng Local Municipality. The Mahikeng Local Municipality is developing the proposed bus and taxi holding area including a filling station and associated infrastructure in the Mahikeng CBD, Registration Division Mahikeng, North West Province. The location of the proposed development is opposite the Mahikeng cemetery between the railway (West) and Carrington Street (East).

The proposed development is part of a larger development project, the Mahikeng Intermodal Facility. This proposed development is located across erven 3781, 3780, 710, 602 and 600 within the Mahikeng CBD, with a combined area of ±3.53 ha. The proposed development, therefore, requires the Environmental Management Programme as part of the Basic Assessment process in terms of the Amended 2014 NEMA EIA Regulations.

Mahikeng Local Municipality (the applicant) along with JM Professional Services CC (the project managers - a development company that specializes in the development of strategically located land) has earmarked the site as described above, for a bus and taxi holding area development comprising of the following facilities:

-  Filling Station
-  Car Wash Area
-  Tyre and Fitment Centre
-  Clinic
-  Spares and Fitment Centre
-  Restaurant
-  Taxi Association Office Buildings
-  Standard Taxi Bays (584)
-  22-Seater Bus Bay (32)
-  Taxi Office Bays (19)
-  Car Wash Bays (14)
-  Cleaning Bays (16)
-  Filling Station Parking Bays (20)
-  Tyre/ Spares and Fitment Centre's Parking Bays (13)



### 1.3. Applicable Activities

#### Government Notice R327 (Listing Notice 1):

- **Activity 14:** The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic meters or more but not exceeding 500 cubic meters.
- **Activity 19:** The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.
- **Activity 27:** The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.

#### Government Notice R324 (Listing Notice 3)

- **Activity 12 (h) (iv):** h) The clearance of an area of 300 square metres or more of indigenous vegetation;  
iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority

## 2. Applicable legislation

**Constitution of the Republic of South Africa (1996):** of special relevance in terms of environment is section 24

**Conservation of Agricultural Resources Act 43 of 1983 (CARA):** supports the conservation of natural agricultural resources (soil, water, plant biodiversity) by maintaining the production potential of the land and combating/preventing erosion; for example, by controlling or eradicating declared weeds and invader plants.

**Hazardous Substances Act 15 of 1973:** to control substances that may cause injury, ill-health, or death through their toxic, corrosive, irritant, strongly sensitizing or flammable nature or by the generation of pressure.

**National Environmental Management: Air Quality Act 39 of 2004 (NEMAQA):** replaces the Atmospheric Pollution Prevention Act (No. 45 of 1965).

**National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA):** supports conservation of plant and animal biodiversity, including the soil and water upon which it depends.

- **National list of ecosystems that are threatened and in need of protection** (GN 1002 of 9 December 2011).

**National Environmental Management: Protected Areas Act 57 of 2003 (as amended Act 31 of 2004) (NEMPAA):** To protect and conserve ecologically viable areas representative of South Africa's biological diversity and natural landscapes and seascapes.

**National Environmental Management: Waste Act 59 of 2008 (NEMWA):** To reform the law regulating waste management to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and securing ecologically sustainable development.

- **List of Waste Management Activities that have, or are likely to have a detrimental effect on the environment:** Identifies activities in respect of which a waste management license is required.

**National Heritage Resources Act 25 of 1999:** supports an integrated and interactive system for managing national heritage resources, including soil, water and animal and plant biodiversity.

**National Veld and Forest Fire Act 101 of 1998 (NVFFA):** protects soil, water and plant life through the prevention and combating of veld, forest, and mountain fires

**National Water Act 36 of 1998 (NWA):** promotes the protection, use, development, conservation, management, and control of water resources sustainably and equitably.

### 3. Role Players and Responsibility Matrix

Co-operation amongst all role players involved in the project is required for the successful implementation of this EMPr. For this to happen, role players must clearly understand their roles and responsibilities in the project, must be professional, form respectful and transparent relationships, and maintain open lines of communication.

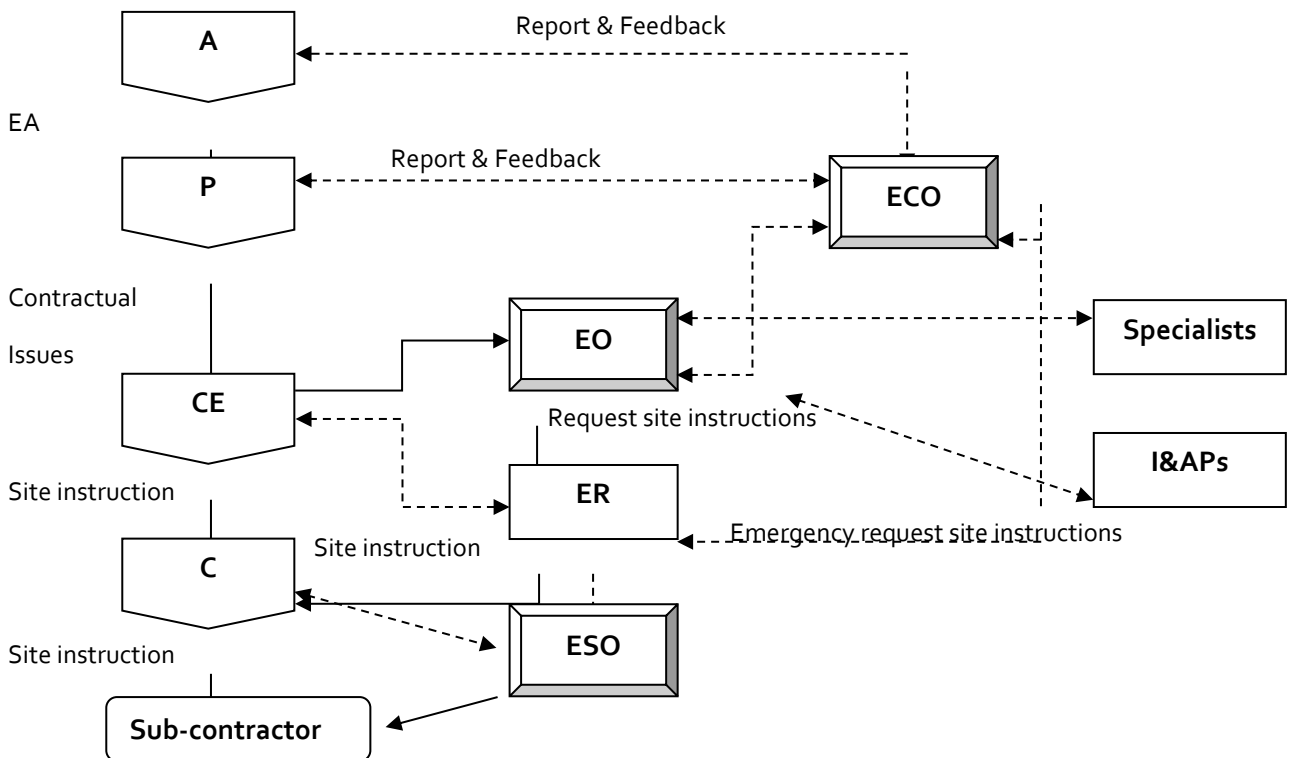
**Table 1:** Functions and Responsibilities of Project Team

Key	Function	Responsibility
<b>P</b>	Proponent	<p>The P is ultimately accountable for ensuring compliance to the EMPr. The Environmental Controlling Officer (ECO) must be contracted by the P (full time or part time depending on the size of the project) as an independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of the EMPr for the project.</p> <p>The P is further responsible for providing and giving mandate to enable the ECO to perform responsibilities. The developer must ensure that the ECO is integrated as part of the project team.</p>
<b>CE</b>	Consulting Engineer	<p>Contracted by the developer to design and specify the project engineering aspects.</p> <p>Generally, the CE runs the works contract. The CE may also fulfil the role of Project Manager (PM) on the proponent's behalf (See PM).</p>
<b>PM</b>	Project Manager	<p>The PM has over-all responsibility for managing the project, contractors, and consultants and for ensuring that the environmental management requirements are met.</p> <p>All decisions regarding environmental procedures must be approved by the PM. The PM has the authority to stop any decommissioning activity in contravention of the EMPr in accordance with an agreed warning procedure.</p>
<b>ER</b>	Engineers Representative	<p>Is the CE's representative on site. Has the power/mandate to issue site instructions and in some instances, variation orders to the contractor, following request by the EO or ECO. The ER oversees site works, liaison with Contractor and ECO.</p>
<b>EO/EM</b>	Environmental Officer / Environmental Manager	<p>Appointed by the CE as their environmental representative on site. The EO is not independent but must rather act on behalf of the CE with the mandate to enforce compliance under the project contract, which must include the EMPr.</p> <p>The EO has the directive to issue non-conformance and hazard certificates. Further, in terms of accepted industry practice, the EO could issue the equivalent of a "cease works" instruction only in exceptional circumstances where serious environmental harm has been or is about to be caused i.e., in cases of extreme urgency and then only when the ER is absent.</p> <p>The EO must form part of the project team and be involved in all aspects of project planning that can influence environmental conditions on the site. On certain types of projects, such as linear developments (fences, pipelines, etc), the EO must also be the liaison between the contractor and landowners.</p> <p>The EO must attend relevant project meetings, conduct daily inspections to monitor compliance with the EMPr, and be responsible for providing reports and feedback on potential environmental problems associated with the development to the project team and ECO.</p>

		<p>The EO must convey the contents of this EMPr to the Contractor site team and discuss the contents in detail with the Contractor as well as undertake to conduct an induction and an environmental awareness training session prior to site handover to all contractors and their workforce.</p> <p>The EO must be suitably experienced with the relevant qualifications and preferably competent in construction related methods and practices.</p>
<b>ECO</b>	Environmental Control Officer	<p>An independent appointment to objectively monitor implementation of relevant environmental legislation, conditions of Environmental Authorisations (EA's), and the EMPr for the project. The ECO must be on site prior to any site establishment and must endeavour to form an integral part of the project team.</p> <p>The ECO must be proactive and have access to specialist expertise as and when required. These specialists include botanists, ecologists, etc. Further, the ECO must also have access to expertise such as game capture, snake catching, etc.</p> <p>The ECO must conduct audits on compliance to relevant environmental legislation, conditions of EA, and the EMPr for the project. The size and sensitivity of the development, based on the Environmental Impact Assessments (EIA), will determine the frequency at which the ECO will be required to conduct audits. (A minimum of a monthly site inspection must be undertaken).</p> <p>The ECO must be the liaison between the relevant authorities and the project team. The ECO must communicate and inform the developer and consulting engineers of any changes to environmental conditions as required by relevant authoritative bodies. The ECO must ensure that the registration and updating of all relevant EMPr documentation is carried out.</p> <p>The ECO must be suitably experienced with the relevant environmental management qualifications and preferably competent in construction related methods and practices.</p> <p>The ECO must handle information received from whistle-blowers as confidential and must address and report these incidents to the relevant authority as soon as possible.</p> <p>On small projects, where no EO is appointed, the ECO must convey the contents of this EMPr to the Contractor (C's) workforce and discuss the contents in detail with the C as well as undertake to conduct induction and an environmental awareness training session prior to site handover to all C's and their workforce.</p>
<b>C</b>	Contractor	<p>The principle contractor, hereafter known as the 'Contractor', is responsible for implementation and compliance with the requirements of the EMPr and conditions of the EA's, contract and relevant environmental legislation. The C must ensure that all sub-contractors have a copy of and are fully aware of the content and requirements of this EMPr.</p> <p>Where specified, the C is required to provide Method Statements which detail how the management actions contained in the EMPr will be implemented.</p>
<b>ESO</b>	Environmental Site Officer	<p>Is employed by the C as his/her environmental representative to monitor, review and verify compliance with the EMPr by the C. This is not an independent appointment; rather the ESO must be a respected member of the C's management team.</p> <p>Dependent on the size of the development the ESO must be on site one week prior to the commencement of construction. The ESO must ensure that he/she is involved at all phases of the construction (from site clearance to rehabilitation).</p>
<b>A</b>	Lead Authority	Is the relevant environmental department that has issued the EA. The A is

		responsible for ensuring that the monitoring of the EMPr and other authorisation documentation is carried out, this will be achieved by reviewing audit reports submitted by the ECO and conducting regular site visits.
<b>OA</b>	Other Authorities	Are those that may be involved in the approval process of an EMPr. Their involvement may include reviewing EMPr's to ensure the accuracy of the information relevant to their specific mandate. OA may be involved in the development, review or implementation of an EMPr. For example, if a specific development requires a water use licence for the relevant national authority, then that authority should review and comment on the content of the particular section pertaining to that mandate.
<b>EAP</b>	Environmental Assessment Practitioner	The definition of an EAP in Section 1 of NEMA is " <i>the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental instruments introduced through regulations</i> ".

**Recommended formal environmental communication channels:**







## 4. Purpose of the EMPr

This Environmental Management Programme (EMPr) aims to give direction and guidance to all associated parties, including the proponent, consultants, contractors, sub-contractors and other persons working on the site. This document binds all contractors, sub-contractors and other persons working on the site to the adherence of conditions and requirements throughout the constructional and operational phases of the project described within this EMPr.

The overall aim of the EMPr is to prevent avoidable damage and/or minimise or mitigate unavoidable environmental damage associated with the construction and, to a lesser degree, the proposed project's operational phases.

### 4.1. Specific Objectives

The specific objectives of this EMPr are to:

-  Provide explicit operational guidelines and environmental monitoring requirements during the construction phases so that activities are done environmentally and sustainably.
-  To benefit the host communities, minimise the impacts on the environment and ensure the community's health and safety by creating a development that eliminates unacceptable health hazards and ensures public and animal safety.
-  To enable proponent and its contractors to use resources efficiently and effectively during the project lifecycle to reduce wastage and associated negative environmental impacts. In addition, the aim is also to handle waste streams responsibly and apply the 'reduce, re-use and recycle' principle, wherever possible
-  To leave areas disturbed by construction in a rehabilitated, stable, non-polluting and tidy condition.

The EMPr is partly prescriptive (identifying specific people or organisations to undertake specific tasks, in order to ensure that impacts on the environment are minimised), but it is also an open-ended document in that information gained during the construction activities and/or monitoring of procedures on site could lead to changes in the EMPr.








### 4.2. Activities covered by the EMPr:

#### 4.2.1. Planning stage:

The implementation of the EMPr is not an additional or "add on" requirement. The EMPr is legally binding through NEMA. The project planning stage consists of layout design surveying and ensuring that all plans and required contracts, permits/ licenses and agreements are set in place.




#### 4.2.2. Construction phase:

The construction phase will start after the relevant authorizations are granted. The construction phase involves earthwork, structure development, service provision and finishing. This phase includes:

-  transportation of construction material and other resource inputs;
-  use of heavy construction equipment on site;
-  storage of input materials and disposal of waste generated;
-  construction of building structures;
-  rehabilitation of the disturbed areas through:
-  demolition/removal of any unwanted construction fences and infrastructure;
-  top-soiling and re-vegetation of areas disturbed by construction.








### 4.2.3. Operation phase

The operational phase is initiated following the completion of construction and the go-ahead of the proponent/ developer. This phase typically involves a smaller, more direct workforce which maintains operational activities. During this phase, routine and corrective maintenance of infrastructure will be conducted. Maintenance activities will need to be carried out throughout the lifetime of the project. Maintenance activities may include:






-  Replacement of faulty equipment
-  Routine inspections
-  Refurbishment of equipment / general maintenance.

## 5. Identification of environmental aspects and impacts:

The contractor shall identify likely aspects before commencing any construction activity. Examples of environmental aspects include:

-  Waste generation
-  Storm water discharge
-  Chemical use operations
-  Energy use operations
-  Water use operations
-  Use of natural resources
-  Noise generation

Thereafter the contractor shall programme his work so that each cause and effect of a construction activity is also identified, and the action is planned to prevent any impacts from happening. If prevention is not practicable, or in the event of mishap or misapplication, the contractor shall provide plans and measures for the engineer's approval, which will limit and contain the magnitude, duration, and intensity of the impact. The contractor shall demonstrate that they can carry out any repair and reinstatement of the damaged environment. Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

-  Pollution of the atmosphere, soil, or water
-  Destruction or removal of fauna and flora and its effect on biological diversity
-  Deformation of the landscape
-  Soil erosion
-  Effect on the built environment.

## 6. Legal requirements:

### 6.1. General:

Construction activities will be according to the best industry practices, as identified in the project documents. This EMPr, which forms an integral part of the contract documents, informs the contractor of his duties in fulfilling the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by Construction activities associated with the project. The contractor should note that obligations imposed by the EMPr are legally binding in terms of statutory environmental legislation and the additional conditions to the general conditions of the contract that pertain to this project. If any rights and obligations in this document contradict those specified in the standard or project specifications, then the latter shall prevail.

### 6.2. Statutory and other applicable legislation:

The contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

## 7. Record keeping:

All records related to implementing this management plan (e.g., site instruction book and method statements) must be kept together in an office that is safe and can be retrieved easily. These records should be kept for a minimum of two years and should be available for scrutiny by any relevant authorities at any time.

It is recommended that photographs are taken of the site **prior to, during, and immediately after construction** as a visual reference. These photographs should be stored with other records related to this EMPr.

### 7.1. Compliance and penalties:

The contractor shall act immediately when a notice of non-compliance is received, correct whatever is the cause for issuing the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register, and the response noted with the date and action taken.

Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed; therefore, any avoidable non-compliance, dependant on severity, shall be considered sufficient grounds for contact to be made with relevant provincial or national authorities.

The responsible provincial or national authorities shall ensure compliance and impose penalties relevant to the transgression as allowed for within its statutory powers.

### 7.2. Report availability:

Copies of this EMPr shall be kept at the construction site office and will be accessible to all senior contract personnel. All senior personnel working on the project shall be required to familiarise themselves with the contents of this document.



## 8. Recommendations

The following are site specific recommendations, as per the various specialist assessments of the project. Please note that if there is any contradiction between the following Specialists recommendations and/or the conditions of the Environmental Authorisation, and the recommendations in Section 7 and 8 below, the Environmental Authorisation and specialist recommendations take precedent.

### 8.2. Specialist's Recommendations on impact minimisation

- The Geohydrological Assessment indicates that a high risk can be expected for this development during the Operational phase concerning ground water quality. It is recommended that constant ground water monitoring and a comprehensive storm water management system be implemented.
- The Ecological Assessment highlights the eradication of alien vegetation regularly and not disturbing the storm water channel, during the construction phase, running through the site.

#### 8.2.1. Construction phase - Specialist recommendations and mitigations

##### **Geohydrological specialist recommendations and mitigations**

This development must ensure that comprehensive mitigation measures are employed as not to further lower the quality of the ground water resource. Care should be taken when installing the fuel tanks and ensure the liners are sufficient and properly placed. The client is reminded that drilling of boreholes for monitoring purposes is a requirement according to the Department of Water and Sanitation.

- There are no plans to abstract groundwater for the planned activity.
  - Should abstraction occur, pollution control through safe dewatering of monitoring boreholes must be performed (Requires pump test)
  - Should abstraction occur, a pump test will be conducted to determine the optimal abstraction for pollution control.
- Determine the quality of water through sampling.
- Upgrade and clean the storm water drain or divert it around the development
- Any hazardous substances using in the construction must be stored correctly and spillages cleaned and disposed of immediately.
- Ensure that all hazardous substances are stored correctly on impermeable areas.
- All hazardous spills must be clean immediately and removed properly.

##### **Ecological specialist recommendations and mitigations**

- Preserving the site's artificial storm water channel is important and must be accommodated within the development.
- The artificial storm water channel on the site should be excluded from development.
- A comprehensive storm water management system should be designed and implemented to ensure that runoff generated on the site feeds into the existing system without contributing significantly toward further deterioration of the water quality.
- An oil separation system or similar should also be considered to prevent contaminated runoff from entering the storm water system, though such a system requires periodic maintenance.
- The development should consider covering this artificial stormwater channel (concrete covering) and the surface area of the taxi rank itself should also be lined (paving, asphalt, etc.).
- The storm water channel should be treated as no-go area during the construction phase and kept in its current condition (Appendix A: Map 1). This construction "no go" area should include not using the channel as stockpile areas, laydown areas, parking or any other activities associated with construction.
- The system's functioning should be retained unmodified, i.e. should still be able to manage storm water generated by the surrounding urban area.

- Monitoring of construction and compliance with recommended mitigation measures must take place.
- Exotic weeds present on site must be eradicated from the site during construction.
- No littering must be allowed and all litter must be removed from site.
- Monitoring of weed establishment and eradication should form a prominent part of management of the development
- The hunting, capturing or harming in any way of fauna on the site must be prohibited.
- In the event of venomous animals, such as snakes, encountered on the site an experienced snake handler should be contacted to remove it.
- It is recommended that the necessary authorisation be obtained from the Department of Water and Sanitation (DWS) but given the low risk that the General Authorisation (GA) route be taken.
- After construction has ceased all construction materials should be removed from the area.

### 8.2.2. Operational phase - Specialist recommendations and mitigations

#### **Geohydrological specialist recommendations and mitigations**

Improving and maintaining groundwater quality will be the most important environmental parameter facing the new development, due to the underground storage of hazardous hydrocarbon/ petrochemical substances. It is recommended that a Geohydrologist be contracted to perform an annual assessment on groundwater quality and if a pollution plume has established itself.

- Ensure the installation of impermeable layers for the filling station/
- Install clean and dirty water separators and storm water collection drains.
- Constant maintenance on the site through cleaning oil spills and maintaining storm water drains,
- Monitoring for any leaks from the facility.
- Early detection of any storage tank leaks.
- Constant monitoring of borehole and chemical sampling.
- Ensuring the liners of the fuel tanks are in optimal condition.
- Implementing remediation activities.
- Chemical sample analysis every 6 months.
- Drilling of one upstream borehole for background quality.
- Drilling four shallow boreholes around the facility for immediate leak detection.
- Drilling two boreholes downstream for plume delineation and tracking speed and concentration of pollution.
- Determine if any ground water users use the water near the development for consumption or any other domestic use and include that borehole in the monitoring program.

### 8.3. Environmental Authorisation

Please ensure that DEDECT confirms their approval of this project in writing.

## 9. Environmental Mitigation Specifications for Impacts

### 9.1. Construction phase EMPr

#### 9.1.1. Social and Environmental Issues

It is important to minimize any negative perception, by taking proactive measures to prevent any social conflicts or social gaps and to develop a positive attitude within the community of the project. The following management strategies are to be implemented:

- Transparent fair recruitment and procurement practices. The contractor chosen should maximize the involvement of local communities in construction and support activities, to the extent possible, based on available skill levels. Ensure that all labour practices conform to the rules and regulations of the Occupational Health and Safety Act, 85 of 1993.
- Training programmes that will benefit both construction stage skills requirements and long-term employment demand should be developed whenever possible.
- The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.
- Priority should be given to the local suppliers of goods and services, which meet project procurement requirements as far as possible. In order to optimize the opportunities for local businesses to supply goods and services to the project, the contractor will do a survey of the capabilities of the goods and services that are locally available that are of an acceptable standard and quality and a survey of the capabilities of local construction companies and identify opportunities for local suppliers.
- A public complaint register and system to ensure that community complaints clearly investigated and adequate remedial taken should be instituted.
- Adequate notification should be done to people residing close to where construction activities are taking place especially if they are to be affected by them. In addition, there should be a system of compensation for any damages to infrastructure that may occur.
- Each worker should be required to abide by a Code of Conduct which will limit unsavoury activities in the local communities and restrict certain behaviours in the work sites and accommodation.
- The Local municipality is ultimately responsible for ensuring that the environment within the project footprint is in a clean and stable state during all phases of this project.
- A fire prevention and emergency preparedness plan must be compiled and made available to persons working on site. A trained fire fighter must be on site at all times. All personnel must be aware of the fire prevention and emergency preparedness plan.

#### 9.1.2. Establishing Office / Camp Sites

- The area chosen for these purposes shall be the minimum reasonably required and involve the least disturbance to vegetation (as determined by the Ecological Report). No trees or shrubs will be felled or damaged to obtain firewood, unless agreed to by the landowner/tenant.
- Fires will only be allowed in facilities or equipment specially constructed for this purpose. A fire prevention and emergency preparedness plan must be made available on site.
- Lighting and noise disturbance or any other form of disturbance that may affect the landowner/tenant/persons lawfully living in the vicinity shall be kept to a minimum. Light and Noise curfews must be discussed and agreed on by persons living in the
- Chemical toilet facilities or other approved toilet facilities should be sited in such a way that they do not cause water or other pollution. Existing facilities must be used (if any) in consultation with the landowner/tenant.

- In cases where facilities are linked to existing sewerage structures, adherence to all necessary regulatory requirements concerning construction and maintenance should be implemented. The facilities must comply with water act requirements.
- Adequate signage must be provided and the area must be appropriately secured.
- Adequate parking and security should be provided at the campsites.
- A notice board must be provided to hold relevant information for on-site personnel.

#### **Ecological specialist recommendations and mitigations**

- Monitoring of construction and compliance with recommended mitigation measures must take place.

#### **9.1.3. Air Quality**

The main sources of impact on air quality are mobilization of equipment, and earthworks. To ensure air quality characteristics of the project area are maintained near the baseline conditions during of the construction stage, the following measures shall be done:

- Regular inspection and scheduled maintenance of all equipment to ensure that construction vehicles are in good condition, are utilising fuel efficiently and do not produce excess emissions.
- Periodically watering the bare surfaces and excavations during construction to keep the dust level down.
- Slowing down the vehicles carrying the construction materials to reduce dust generation.
- Properly wrapping the material truck containers with cover to avoid dust spreads on windy days and prohibiting transport of over loaded trucks.
- Providing and using the safety equipment such as dust mask, noise cover for employees who work near the dusty location such as the heavy equipment operators
- Optimization of working schedule and work to help to minimize several material vehicle mobilization trips
- Storage facilities are to be equipped with evaporation prevention mechanisms which are to be maintained in working order.
- Air monitoring systems must be implemented around the storage tanks.

#### **9.1.4. Noise and Vibrations**

The primary noise sources will be vehicles and equipment utilized during the construction stage including graders, bulldozers, general purpose vehicles, etc. To manage the impact the following will be done:

- The work schedule for the high noise level activities will be arranged between 08:00 AM and 17:00.
- Avoiding unnecessary simultaneous noisy activities.
- No amplified music shall be allowed at the site.
- Selecting 'quiet' construction equipment and working method and avoiding unnecessary revving and hooting.
- Providing ear protection for activities that are likely to create noise in order to protect worker's health and safety.

#### **9.1.5. Erosion Control**

Construction activities will require the removal of vegetation cover, potentially resulting in soil erosion and subsequent impacts on surface water quality due to uncontrolled rainwater run-off or mechanical/wind action.

The following measures are necessary to minimise impacts.

- Clearance of vegetation should be restricted to the absolute minimum required to facilitate construction activities to proceed. No protected plant species shall be removed without a permit. Disturbance of topsoil and vegetation rootstock must be minimized as far as possible.
- Appropriate drainage systems will be built to accommodate the surface water movement from the rain and wind.
- Construction activities shall take place only within the approved demarcated area. Appropriate drainage facilities must be constructed to make sure water runs smoothly downstream.
- Top soil layer will be kept to rehabilitate and adequately stored to protect it from erosion.
- Areas where construction has been finished and are to be left as an open space should immediately be re-vegetated

### **9.1.6. Contamination of Land**

Land contamination may occur as a result of fuel and oil leaks or spills and/or poor fuel, chemical and waste storage.

- The storage areas shall be securely fenced and secured and appropriately marked to indicate the goods in the storage. Material Safety Data Sheets should be kept for all hazardous materials on site.
- All hazardous substances and stocks such as diesel, oils, detergents, etc., shall be stored in areas with impervious flooring such as concrete and properly banded. Drip pans, other impervious surface, shall be installed in such storage areas to prevent soil and water pollution.
- Dedicated impervious areas should be designated for concrete mixing and the spillage from concrete mixed should be cleaned immediately.
- The waste management strategy on the construction site should be hinged on the waste hierarchy model of 'reduce, reuse and recycle' waste in order to reduce the ultimate impact on the environment.
- All used oils, grease or hydraulic fluids shall be placed in appropriate impervious containers. These receptacles will be removed from the site regularly for disposal at a licensed disposal facility or sent for recycling/reuse with a registered facility.
- Residues from machinery maintenance and other sources contaminated with hazardous waste should be stored in proper containers that avoid seepage to ground.
- All oil spills must be reported to the ECO within 24 hours.
- Spills should be cleaned immediately by removing the spillage with the polluted soil and disposing of them at a recognised facility. In areas where the spills are some, an absorbent agent can be used and the area treated in situ
- Adequate waste receptacles shall be made available and all waste shall be adequately stored so that it does not pose a pollution risk. General waste is to be disposed of through the municipal service. Any other waste will be disposed of through only licensed waste disposal facilities.
- All machinery must be in working order. Drip trays are to be placed under stationary vehicles to prevent any accidental soil contamination.
- Storage facilities must meet national and international standards and be impervious and resistant to corrosive elements.

### **Geohydrological specialist recommendations and mitigations**

- Any hazardous substances using in the construction must be stored correctly and spillages cleaned and disposed of immediately.
- Ensure that all hazardous substances are stored correctly on impermeable areas.
- All hazardous spills must be clean immediately and removed properly.

### 9.1.7. Use of cement or concrete

Concrete and cement may only be mixed on existing hard surfaced areas, or edged mortar boards or a suitable container. Concrete may not be mixed or stored directly on the ground under any circumstances;

- The visible remains of the batch and concrete, either solid, or from washings, must be physically removed immediately and disposed of as hazardous waste.
- Extreme care must be taken to limit water contamination by washing equipment. Water from concrete washing can be re-used in concrete mixes or stored in drums, removed from the site and disposed of at a licensed municipal dump site.

#### Concrete batching plants

The following procedures must be implemented to control waste water run-off from concrete batching plant locations:

- The ECO must approve the location of concrete batching areas (if possible/appropriate, the use of ready-mix concrete is preferred).
- Concrete batching facilities must have suitable bunding methods in place to ensure minimal waste water run-off occurs during batching operations.
- Contaminated water may not enter a natural or artificial (e.g. trench / sloop or dam) water system. Preventative measures include establishing sumps from where contaminated water can be treated *in situ* or removed to an appropriate waste site.
- Dry mixing batching areas to be carefully placed in consultation with the ECO.
- Cement bags are to be securely stored under cover and atop plastic sheeting. Used cement bags are to be regularly disposed of via the solid waste management system, and must not be used for any other purpose.
- Sand and stone used for cement or concrete batching must be stored on plastic layers (or on ECO approved disturbed areas) to prevent contamination of the natural environment.
- Cleaning of equipment and flushing of mixers must not pollute the surrounding environment. All wastewater resulting from concrete batching must be disposed of *via* the contaminated water management procedure.
- Excess or spilled concrete must be confined within the works area and all visible remains of excess concrete must be physically removed and disposed of on completion of cement work. Washing the remains into the ground is not acceptable. All excess aggregate must also be removed.
- Wash-down areas must be confined to within the concrete batching areas only.

### 9.1.8. Surface water and groundwater quality

Poor chemical storage and poor waste management practices may lead to the contamination of water sources.

**Sewage and sanitary effluent** has the potential to adversely affect the quality of receiving water bodies unless properly managed. To eliminate the risk of contamination, the following measures have to be instituted:

- Access to adequate, well-kept sanitation facilities must be available on site for all personnel. Chemical toilets shall be used during the construction stage and a registered service provider shall be contracted to service the toilets regularly. Existing facilities must be used (if any) in consultation with the landowner/tenant.
- Suitable covered receptacles for waste shall be available at all times and conveniently placed for waste disposal.
- A sanitation expert must immediately deal with spills or overflows from chemical or other toilets used by construction staff.
- Responsible management of the site will be required to reduce risks/threats to groundwater and surface water

**Petroleum and other secondary components** will be the major identified risk associated with this development. To eliminate the risk of contamination, the following measures have to be instituted:

- A detailed groundwater monitoring network must be established and implemented.
- The storm water management plan must be implemented and contaminated runoff must be diverted, filtered and separated.
- Above ground fuel tanks need to be surrounded by a bunded area which can contain 110% of the storage tank's capacity.
- Underground tanks must follow regulations and best practice guidelines on the liners used to prevent spillage into the ground water resources.
- Any medium to major spills need to be reported immediately to the competent authority and measures implemented to mitigate major environmental damages.
- Oil spill kits need to be placed around the filling station to mitigate any spillages deemed environmentally damaging.
- A stormwater management system must be designed to limit the possible cross contamination of stormwater with contaminated water runoff. Stormwater originating from the filling station surface area must be treated as contaminated water. Contaminated water systems must be separate from clean water systems.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and treated before discharge or removed from the site for appropriate disposal at a recognised facility.
- All water retention structures required by the stormwater management plan must be able to hold water from 1:50 rain events per year.
- Leak detection systems must be implemented in all fuel storage and transmission lines.
- Refuelling, fuel loading/unloading, oil change-outs, waste storage and disposal activities must be carefully managed to prevent spillages.
- No uncontrolled discharges resulting in pollution of the receiving environment shall be permitted.
- An emergency accidental spillage plan must be in place and workers must be trained to handle such accidents.
- Washing of construction equipment shall be done in a designated area to prevent any runoff of contaminated washing water.
- All construction vehicles must be in working order. Drip trays must be placed under stationary construction vehicles.

#### **Geohydrological specialist recommendations and mitigations**

This development must ensure that proper mitigation measures are employed as not to further lower the quality of the ground water resource. Care should be taken when installing the fuel tanks and ensure the liners are sufficient and properly placed. The client is reminded that drilling of boreholes for monitoring purposes is a requirement according to the Department of Water and Sanitation

- There are no plans to abstract groundwater for the planned activity.
  - Should abstraction occur, pollution control through safe dewatering of monitoring boreholes must be performed (Requires pump test)
  - Should abstraction occur, a pump test will be conducted to determine the optimal abstraction for pollution control.
- Determine the quality of water through sampling.
- Upgrade and clean the storm water drain or divert it around the development

#### **Ecological specialist recommendations and mitigations**

- Preserving the site's artificial storm water channel is important and must be accommodated within the development.

- The artificial storm water channel on the site should be excluded from development.
- A comprehensive storm water management system should be designed and implemented to ensure that runoff generated on the site feeds into the existing system without contributing significantly toward further deterioration of the water quality.
- An oil separation system or similar should also be considered to prevent contaminated runoff from entering the storm water system, though such a system requires periodic maintenance.
- The development should consider covering this artificial stormwater channel (concrete covering) and the surface area of the taxi rank itself should also be lined (paving, asphalt, etc.).
- The storm water channel should be treated as no-go area during the construction phase and kept in its current condition (Appendix A: Map 1). This construction “no go” area should include not using the channel as stockpile areas, laydown areas, parking or any other activities associated with construction.
- The system's functioning should be retained unmodified, i.e. should still be able to manage storm water generated by the surrounding urban area.

#### **9.1.9. Water Usage**

- Any water used that does not emanate from Municipality supplies must be registered and authorised by the Department of Water Affairs before usage commencement.
- The contractor shall promote responsible water use by all personnel.

#### **9.1.10. Traffic access routes**

Site operators must control the movement of all vehicles and plant, including that of his suppliers, so they remain on designated routes. In addition such vehicles and plants must be routed and operated to minimise disruption to regular users of the routes not on the site.

- On public roads adjacent to the Site vehicles/ delivery trucks/ tankers will adhere to municipal and provincial traffic regulations.
- Only approved access roads may be used.
- All measures must be implemented to minimize impacts on local commuters e.g. limiting tanker vehicles travelling on public roadways during the morning and late afternoon commute time and avoiding using roads through densely populated built-up areas to not disturb existing retail and commercial operations.

#### **9.1.11. Fauna and Flora**

Fauna and flora are negatively impacted by noise from construction activities (disturbance) and workers' gathering/ hunting of flora and fauna. The following measures are necessary to mitigate impacts.

- Topsoil shall be removed and kept for use during rehabilitation.
- The Contractor shall be responsible for removing alien vegetation within areas affected by the construction activities including cleared ground and topsoil stockpiles. Equipment should be regularly washed to avoid transporting seeds (invasive species) or plant diseases.
- No protected or endangered plant species shall be removed without a permit or license.
- No trees or shrubs will be felled or damaged to obtain firewood.
- The rehabilitation activities require re-planting vegetation in any areas cleared for the construction activities. This will promote soil stability, improve the visual environment and provide faunal habitat.

#### **Ecological specialist recommendations and mitigations**

- Exotic weeds present on site must be eradicated from the site during construction.
- Monitoring of weed establishment and eradication should form a prominent part of management of the development
- The hunting, capturing or harming in any way of fauna on the site must be prohibited.



- In the event of venomous animals, such as snakes, encountered on the site an experienced snake handler should be contacted to remove it.
- It is recommended that the necessary authorisation be obtained from the Department of Water and Sanitation (DWS) but given the low risk that the General Authorisation (GA) route be taken.

#### **9.1.12. Safety**

- The Contractor shall be responsible for the protection of the public and public property from any dangers associated with the construction and operation activities,
- All work should be handled in accordance with the Occupational Health and Safety Act (Act 85 of 1993) and adequate safety precautions taken and suitable sanitation facilities provided in line with the requirements of the act. It is the duty of the contractor to ensure that the all protective measures against accidents are in place.
- Any works/activities which may pose a hazard to humans and/or domestic animals are to be protected or cordoned off and, if appropriate, warning signage erected
- The construction footprint is to be fenced off and demarcated (with the applicable structures and with appropriate vernacular and pictorial signage) to prevent casual access to the site which may result in unnecessary harm.
- All excavations and trenches must be clearly demarcated.
- No unauthorised persons should be allowed onto the site and access strictly controlled.
- Appropriate security is to be provided at the site to protect equipment and provide a safe construction site and works areas.
- Any damage caused due to the construction activities shall be repaired to the satisfaction of the project manager and owner.
- All employees must be aware of the fire preparedness and emergency preparedness plan.
- Environmental and health and safety related incidents should be recorded in a register within the environmental and occupational health and safety file on site and communicated to relevant persons.
- Traffic calming and speed control measures leading up to and into the site must be implemented in consultation with the local authorities.

#### **9.1.13. Historical, Archaeological and Heritage Impacts**

- Should any cultural or archaeological artefacts be found during operational activities, operations must cease immediately, the area secured and immediately inform SAPS, and the South African Heritage Resources Agency and other relevant authorities.
- No archaeological or historical significance site may be moved without a permit from the SAHRA. Any permitted removal of any archaeological or historical matter must be done under the strict supervision of a qualified registered archaeologist.

#### **Archaeological and palaeontological specialist recommendations and mitigations**

- The study area, is rated Generally Protected C, (field rating categories prescribed by SAHRA), which may undergo destruction mitigation.

#### **9.1.14. Solid waste Management**

Waste refers to all solid waste, including domestic, hazardous, and construction debris. The Contractor are responsible for the establishment of a refuse control system (which must consider recycling wherever possible) that is acceptable to the ECO. Disposal arrangements must be made and accepted by the ECO before construction starts.

- No littering or on-site burying or dumping of waste materials, vegetation, litter or refuse may occur.

- All solid waste must be disposed of offsite at an approved landfill site in terms of section 20 of the Environment Conservation Act (Act No. 73 of 1989). The Contractor must supply the ECO with a certificate of disposal.
- The Contractor must provide problem animal- and weatherproof bins with lids of sufficient number and capacity to store the solid waste produced daily. The lids must be kept firmly on the bins at all times. Bins must not be allowed to become overfull and must be emptied regularly.
- Waste from bins may be temporarily stored on site in a central waste area that is weatherproof and scavenger proof and which the Engineer and the ECO has approved.
- All hazardous waste must be disposed of at a registered hazardous waste disposal site and certificates of safe disposal must be obtained.
- All waste generated during the decommissioning and reconstruction activities must be removed by the Contractor as soon as possible, within the period specified in the environmental compliance audit report (monthly) and disposed of at a registered landfill site.
- The Contractor must make provision for workers to clean up the Contractor's camp and working areas daily so that no litter is left lying around and the site is neat and tidy. The Contractor must remove the refuse collected at least once a week from site.
- All sewage and any waste generated during the construction phase, should be collected, contained and disposed of at the permitted and/or licensed facilities of the Local Authority. Please note that proof of the agreement between the Applicant and the concerned Local Authority must be submitted to the Department of Water and Sanitation (Tel: 054 338 5800).
- No waste from the facility should be released to the environment during operation. Wastewater should be contained within the evaporation ponds.
- The disposal of general and hazardous waste must be carried out in an environmentally safe way to prevent and/or minimise the potential for pollution of water resources and collection of which should be done by an accredited waste collector. All applicable Sections of the National Environmental Management: Waste Act (Act 59 of 2008) should be strictly adhered to;

#### **Ecological specialist recommendations and mitigations**

- No littering must be allowed and all litter must be removed from site.

#### **9.1.15. Rehabilitation**

- On completion of operations, all buildings, structures or objects on the camp/office site shall be demolished and removed.
- Where office/camp sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
- On completion of operations, the areas shall be cleared of any contaminated soil, which must be dumped as per the waste management plan.
- All the infrastructure, equipment, plant, temporary housing, roads, and other items used during the construction period will be removed from the site.
- Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the area and disposed of at a registered waste disposal facility. It will not be permitted to be buried or burned on the site.
- Disturbed areas should be left in a safe and stable manner. Preventative measures may be necessary to construct adequate drainage structures including ditches and other structures to facilitate surface water movement.
- Photographs of the camp and office sites, before and during the construction and after rehabilitation, shall be taken at selected fixed points and kept on record.

- The disturbed surfaces shall then be ripped or ploughed and the topsoil previously stored shall be spread evenly to its original depth over the whole area. The area shall then be fertilised if necessary (based on a soil analysis).
- Should a reasonable assessment indicate that the re-establishment of vegetation is unacceptably slow, there might be need that the soil be analysed and any deleterious effects on the soil arising from the construction operation be corrected and the area be seeded with a seed mix to their specification.

#### **Ecological specialist recommendations and mitigations**

- After construction has ceased all construction materials should be removed from the area.

## **9.2. Operational Phase EMPr**

### **9.2.1. Air Quality**

- Storage facilities must be equipped with evaporation prevention mechanisms to maintain working order. Air monitoring systems must be implemented around the storage tanks.

### **9.2.2. Contamination of land**

- Storage facilities must meet national and international standards and be impervious and resistant to corrosive elements. These facilities need to be well maintained.

### **9.2.3. Surface water and ground water quality**

- Refuelling, fuel loading/unloading, oil change-outs, waste storage and disposal activities must be carefully managed to prevent spillages.
- Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and treated before discharge or removed from the site for appropriate disposal at a recognised facility.
- Responsible management of the site will be required to reduce risks/threats to groundwater and surface water
- Underground tanks must follow regulations and best practice guidelines on the liners used to prevent spillage into the ground water resources.
- Any medium to major spills must be reported immediately to the competent authority and measures implemented to mitigate major environmental damages.
- Oil spill kits need to be place around the filling station to mitigate any spillages deemed environmentally damaging.
- An emergency accidental spillage plan must be in place and workers must be trained to handle such accidents.

#### **Geohydrological specialist recommendations and mitigations**

Improving and maintaining groundwater quality will be the most important environmental parameter facing the new development, due to the underground storage of hazardous hydrocarbon/ petrochemical substances. It is recommended that a Geohydrologist be contracted to perform an annual assessment on groundwater quality and if a pollution plume has established itself.

- Ensure the installation of impermeable layers for the filling station/
- Install clean and dirty water separators and storm water collection drains.
- Constant maintenance on the site through cleaning oil spills and maintaining storm water drains,
- Monitoring for any leaks from the facility.
- Early detection of any storage tank leaks.
- Constant monitoring of borehole and chemical sampling.

- Ensuring the liners of the fuel tanks are in optimal condition.
- Implementing remediation activities.
- Chemical sample analysis every 6 months.
- Drilling of one upstream borehole for background quality.
- Drilling four shallow boreholes around the facility for immediate leak detection.
- Drilling two boreholes downstream for plume delineation and tracking speed and concentration of pollution.
- Determine if any ground water users use the water near the development for consumption or any other domestic use and include that borehole in the monitoring program.

#### **9.2.4. Water Management**

- Ensure that all additional water uses are correctly registered with the Department of Water and Sanitation (e.g. Agri-industrial use).
- Water conservation measures such as low flow taps, high pressure hoses, dual flush toilets, water wise gardens, rainwater tanks etc. must be encouraged and implemented where possible if required.
- Every reasonable effort must be made to reduce the long term water demand.
- Environmental training of personnel must include water conservation awareness.
- A monthly water monitor program aiming to reduce water usage must be implemented (records must be kept).

#### **9.2.5. Emergency/contingency and safety**

Responsible management and operation of the facility and the adoption of best practice during the operation of the plant must occur.

- The site supervisor will notify downstream users immediately if a total system failure occurs.
- A list of suitably qualified technicians' contact details (fitters, electricians, etc.) must be on site.
- The installed leak detection systems must be regularly checked.
- All relevant municipal and provincial water authorities are to be immediately notified in case of flooding, accidental overflow or leakage from the facility.
- A safety representative must be allocated, and all personnel on the site must know who the safety representative is and safety meetings should occur regularly.
- Maintenance and management roles should be clearly defined.
- All new operational staff and maintenance contractors must undergo general environmental awareness training before working on site and health and safety induction. All staff to be suitably qualified and have the necessary training.
- Suitable response protocols must be implemented to ensure optimum and safe facility operation and corrective actions in case of any wastewater/effluent leaks or spills.
- Fire on site must be prohibited. A trained fire fighter must be on site at all times. Implementation of an emergency fire plan must occur on site. All personnel must be aware of the fire emergency plan. Firefighting equipment (ie. water hoses and fire extinguishers) must be on site at all times and accessible.
- Smoking on site must be prohibited in the vicinity of flammable substances.
- Ensure the availability of firewater tie-in points

### 9.2.6. Waste Management

- An integrated waste management approach must be encouraged based on waste minimisation (e.g. reduction, recycling, reuse and disposal). Poor waste management can lead to adverse environmental impacts (e.g. odours, pollution and visual impact) and health risks. Sound waste management is thus non-negotiable.
- No on-site burying or dumping waste materials, vegetation, litter or refuse may be allowed.
- Domestic waste must be stored in approved containers (e.g. bins with removable lids).
- All solid waste will be disposed of at a landfill licensed in terms of section 2 (schedule 2) of National Environment Waste Act No. 59 of 2008 as amended.
- A person who generates general waste (inclusive of domestic waste, building waste, business waste and inert waste) collected by a municipality must place the waste in a container and at a location approved by the municipality. This applies to the proposed restaurant and taxi association office.
- If required, any future industries on site requiring additional waste and/or emissions permits or licences in terms of the applicable legislation, the owner/tenants must obtain these permits/licences before the specific operations can commence.

#### **Tyre fitment centre: Waste tyres**

- Waste tyres must be managed in accordance with the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) Waste tyre regulations, 2017.
- No person may
  - Manage waste tyres in a manner which does not comply with the Waste tyre regulations, 2017
  - Recover or dispose of waste tyres in a manner that is likely to cause pollution of the environment or harm to health and well-being;
  - Dispose of a waste tyre at a waste disposal facility;
- A tyre dealer must classify any used tyre in their possession or control as either a part worn tyre or retreadable casing and any tyre not falling into these categories must be classified as a waste tyre.
- A tyre dealer must mutilate waste tyres per Part 2 Regulation 6(2) before disposal.
- A tyre dealer must manage all waste tyres in their possession or control in accordance with a waste tyre management plan or by direction of the Bureau contemplated in Regulation 12(1)(b).

#### **Clinic: Health care risk waste**

- Waste generated by the clinic needs to be managed per the National Environmental Management: Waste Act, 2008 (Act. No. 59 of 2008)'s Draft health care risk waste management regulations.
- Health care risk waste must be segregated and containerised (in rigid, leak proof, and puncture resistant containers) at the point of generation. All sharps waste must be packaged in sharps containers manufactured in accordance with SANS 452.
- Health care risk waste must be stored in an inaccessible (to unauthorised persons), secured, covered designated area that is appropriately ventilated and pest controlled. This designated area must be demarcated with the appropriate warning signs.
- Every health care risk waste holder must possess a waste manifest document issued following the Waste Classification and Management Regulations, 2011 (As amended).
- Every holder of health care risk waste must keep accurate and up-to-date records of the management of health care risk waste relevant to that facility. These documents must be kept for a minimum of 5 years, and made available to the department on request.

#### **Spare parts fitment centre: hazardous waste**

- Waste generated from the spare parts fitment centre should be mindful of the waste generated within their capacity. Any hydrocarbon-based liquids drained from vehicles must be stored in a rigid, leak-proof container which is to be disposed of at a regulated facility which is capable of treating such waste.
- Any spills of hazardous waste should be treated with an emergency spill kit.

### **9.2.7. Pollution Management**

All possible pollution sources must be identified and all reasonable steps taken to prevent pollution or accidental spillages.

- Ensure that all concentrated potential sources of pollution are protected (bunded) to minimise the risk of accidental spillage or pollution. Storage tanks should be bunded in such a way to contain at least 110% of the storage tank's capacity.
- Vehicles and other machinery must be serviced well above the 1:100 year flood line or within a horizontal distance of 100m from any watercourse or 500m of a wetland/pan. Oils and other potential pollutants must be disposed at an appropriate licensed site, with the necessary agreement from the owner of such a site;
- Any contaminated water captured (from spills or in the storm water channels) must be stored and removed correctly by a qualified service provider. Records of removal must be kept.

### **9.2.8. Sewage Management**

If applicable sewerage must be installed following the Municipal regulations and Department of Water and Sanitation (DWS) requirements.

- Sewerage management must aim at the prevention of pollution and must be maintained regularly.
- Maintenance records must be kept

### **9.2.9. Chemical management (where required)**

Proper chemical management is required to minimize or eliminate the risk of environmental damage and fatalities, illnesses, injuries and incidents arising from the storage, handling, transport and disposal of hazardous material.

- Compliance with the Occupational Health and Safety Act of 1983
- An emergency plan must be made to comply with section 30 (Control of emergency incidents) of the National Environmental Management Act (NEMA), No. 107 of 1997.
- In case of product spills or leaks, such incident must be reported to all relevant authorities and the Directorate: Pollution Management per Section 30 (10) of NEMA, No. 107 of 1997.
- Access to chemical storage areas must be strictly restricted authorised personnel.
- Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible, the available MSDSs should include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.
- A system shall be in place to ensure that MSDS are available to all personnel (including first-aiders and medical personnel) involved in the transportation, storage, handling, use and disposal of hazardous materials on site.
- All storage vessels, containers and tanks should be labelled where significant risks exist (based on a risk assessment). Labelling shall clearly identify the stored material.
- Personnel using and handling chemicals shall have received proper training, using information from the MSDS.
- For each site establishment, yard or other temporary chemicals storage area, a map indicating the potential sources of pollution and corresponding location of spill kits will be prepared. Spill kits will be placed at sufficient proximity following the degree of risk for spillage, and a responsible person designated for each.

- Emergency response equipment for spillage containment, fires, explosions, burns, etc. must be available.
- Visible safety signs should be placed in areas of potential hazard, e.g. where tap water is not to be used for drinking purposes, indicating the dangers of chlorine or informing of the safety equipment to be worn when entering a certain area, etc.
- Where chemicals such as chlorine are being dosed self-contained breathing apparatus (SCBA) must be available and the expiry date is relevant. This apparatus must be kept out of the chlorine room.
- Appropriate response arrangements with external medical providers e.g. ambulance, hospitals, fire brigade etc. must be made and emergency numbers must be easily available and prominently displayed.
- Emergency response procedures appropriate to the hazardous materials and the disposal of the hazardous material must be drafted.
- All emergency equipment to be checked at least every 6 months and serviced as required. A record of all checks must be kept.
- All associated records, documentation and registers, reports, monitoring data relating to the chemical management plan must be stored on file and available for audit purposes

## 10. Method Statements

The Contractor shall submit written Method Statements for all environmentally sensitive aspects of the work. It should be noted that Method Statements must contain sufficient information and detail to mitigate the potential impacts of the works on the environment. The Contractor will also need to thoroughly understand what is required of them to undertake the works. Work shall not commence until Method Statements have been put in place.

The method statement defines the nature of the planned work with a step-by-step outline such that the ECO and the applicant may understand the contractor's intentions. It would enable them to assist in implementing any mitigation steps to mitigate the environmental effects across such tasks. The contractor must submit the method document until any particular construction activity is scheduled to start. Work may not begin until the ECO and the applicant have accepted the method statement.

The method statement must cover the relevant information concerning:

- Location & development of concrete batching plant facilities
- Location and timing of activities
- How to store material
- How to get equipment to and from site
- Procedures for the construction
- Compliance/ non-compliance with the Specifications, and
- Any other information which the applicant and ECO find appropriate

The contractor must comply with these approved method statements and any operation covered by a method statement must not begin until the applicant and the ECO have approved this method statement