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DRAFT CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME FOR MOOV ENERGY, KRAAIFONTEIN INDUSTRIA, CAPE TOWN, WESTERN CAPE



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For and on behalf of Kantey & Templer (Pty) Ltd

For and on behalf of	
Kantey & Templer (Pty) Ltd	
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**DRAFT CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME FOR MOOV
ENERGY, KRAAIFONTEIN INDUSTRIA, CAPE TOWN, WESTERN CAPE**

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LIST OF ABBREVIATIONS

DEADP -	Department of Environmental Affairs and Development Planning
DWA -	Department of Water Affairs
EA -	Environmental Authorization
ECA -	Environment Conservation Act, 1989 (Act No. 73 of 1989)
ECO -	Environmental Control Officer
EIA -	Environmental Impact Assessment
EMPr -	Environmental Management Programme
EMS -	Environmental Management System
EO -	Environmental Officer
ESO -	Environmental Site Officer
I&APs -	Interested and Affected Parties
IEM -	Integrated Environmental Management
NEMA -	National Environmental Management Act, 1998 (Act No. 107 of 1998)

GLOSSARY OF TERMS

Alien species: A plant or animal species introduced from elsewhere: neither endemic nor indigenous.

Anthropogenic: Change induced by human intervention or human activities.

Arable potential: Land with soil, slope and climate components where the production of cultivated crops is economical and practical.

Auditing: A systematic, documented, periodic and objective evaluation of how well the EMPr 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 organization to improve its environmental policies and management systems.

Biodiversity: The rich variety of plants and animals that live in their own environment.

Building and demolition waste: Waste, excluding hazardous waste, produced during the construction, alteration, repair or demolition of any structure, and includes rubble, earth, rock and wood displaced during that construction, alteration, repair or demolition.

Business waste: Waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment or government administration purposes.

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

Conservation: Protecting, using and saving resources wisely, especially the biodiversity found in an area.

Contaminated: Means the presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely.

Decommissioning: The planning for and management of the removal of aboveground storage tanks and associated infrastructure and remediation where required.

Disposal: The burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land.

Corrective (or remedial) action: Response required in 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 study of the inter-relationships between organisms and their environments.

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

Environment: The surroundings within which humans exist that are made up of the land, water and atmosphere of the earth. Micro-organisms, plants and animal life. Any part or combination of the above, the inter-relationships 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 Impact Assessment: A process of identifying, predicting, evaluating and mitigating the biophysical, social and other relevant effects of a development proposal.

Environmental Management: Managing the activities, products, services and facilities that have and/or can have significant impact on the environment.

Environmental Management Programme: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the construction phase of the project.

Environmental Management System: Provides guidance on how to manage the environmental impacts of activities, products and services. They detail the organizational structure, responsibilities, practices, procedures, processes and resources for environmental management. The ISO14001 EMS standard has been developed by the International Standards Organization.

Environmental policy: Statement of intent and principles in relation to overall environmental performance, providing a framework for the setting of objectives and targets.

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.

Impact: A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Indigenous species: Plants and animals that are naturally found in an area.

Infrastructure: The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewage.

Integrated: Mixing or combining all useful information and factors into a joint or unified whole e.g. Integrated Environmental Management.

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

Local relief: The difference between the highest and lowest points in a landscape. For the purposes of this study, the local relief is based on a scale of 1:50 000.

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

Natural environment: Our physical surroundings, including plants and animals, when they are unspoiled by human activities.

Over-utilisation: Over-using resources which affects their future use and the environment.

Policy: A set of aims, guidelines and procedures to help you make decisions and manage an organization or structure. Policies are based on people's values and goals. See Integrated Metropolitan Environmental Policy.

Process: Development usually happens through a process i.e. several planned steps or stages.

Proponent: Applicant. Entity which applies for environmental approval and is ultimately accountable for compliance with conditions stipulated in the EA and requirements of the EMPr.

Recycling: Collecting, cleaning and converting waste into re-usable materials.

Resources: Parts of our natural environment that we use and protect, e.g. land, forests, water, wildlife, and minerals.

Stakeholders: A subgroup of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term includes the proponent, authorities and all I&APs.

Stormwater management: Strategies implemented to control the surface flow of stormwater such that erosion, sedimentation and pollution of surface and ground water resources in the immediate and surrounding environments are mitigated. This is specifically important during the construction and decommissioning phases of a project.

Sustainable development: The integration of social, economic and environmental factors in planning, implementation and decision making so as to ensure that development serves present and future generations.

Sustainability: Being able to meet the needs of present and future resources.

Waste Management: Classifying, recycling, treatment and disposal of waste generated during construction, operation and decommissioning activities.

Wetland: An area of land with water mostly at or near the surface, resulting in a waterlogged habitat containing characteristic vegetation species and soil types e.g. veils, swamps.

Zoning: The control of land use by only allowing specific types of development in fixed areas or zones.

1. INTRODUCTION

Moov Energy (Pty) Ltd (Moov), established in 2013, is the Astron Energy (formerly known as Caltex) Western Cape Branded Marketer supplying petroleum products to Astron Energy (Pty) Ltd. (Astron Energy) service stations and commercial clients in the Western Cape region.

Since 2018, Moov has been operating a diesel storage and distribution facility on property described as Erf 21594, 13 Kiaat Street, Kraaifontein Industria (see Figure 1). The facility currently consists of 2 x 23 m³ aboveground diesel storage tanks (denoted Tank 1 and Tank 2) housed in a bund, 2 x 1 hose diesel pumps, a truck workshop, an oil drum store and administration offices. Tank 1 was installed in 2018, and Tank 2 in 2022. In addition, Moov stores approximately 500 m³ of oil/lubricants (99%), degasol engine cleaner (0.5%) and ethanol solution (0.5%) as well as LPG storage of 1.5 tonnes.

The existing depot consists of the following infrastructure:

- Office and admin building,
- Warehouse building for storage of oils/lubricants, degasol engine cleaner and ethanol solution,
- Truck wash bay facilities,
- 2 x 23 m³ aboveground horizontal diesel tanks with dispensing pump for own use,
- Truck Workshop building,
- Truck staging and car parking facilities.

2. PROJECT OVERVIEW

2.1 Project Description

The proposed development involves the expansion of an existing fuel storage and distribution facility located in Kraaifontein Industria, within the City of Cape Town. Currently used for diesel storage and distribution, the facility will undergo changes aimed at increasing the on-site petroleum product storage capacity to 2 500 m³. The project will include the removal of two existing aboveground diesel storage tanks (combined capacity of 46 m³) and the installation of three new aboveground tanks, comprising:

- 2 x 1 000 m³ tanks for 50 ppm diesel, and
- 1 x 500 m³ tank for unleaded petrol (ULP 95).

The project will therefore consist of:

- The demolition of existing structures and buildings to make way for the new tanks.
- Removal of the existing two tanks with a combined capacity of 46 m³ and demolition of bund walls.
- Installation of three new aboveground tanks for the storage of Diesel and ULP 95, as follows:
 - 2 x 1000 m³ 50 ppm Diesel and
 - 1 x 500 m³ for ULP 95.
- Construction of a new bund to contain 100% of the contents of the largest tank.
- The associated containment facilities as outlined in SANS 10089 Part 1.
- The required fire protection facilities covering the new infrastructure.
- Construction of separate entry and exit gates for the decanting and loading bulk trucks.
- Trucks for offloading & loading operations will enter the depot via the gate on the left and exit on the right.
- Trucks for overnight staging will enter the depot via the left gate, pass beyond the new tank farm and park alongside one another.

2.2 Project Site Location

The proposed site is located at 13 Kiaat Street, Kraaifontein, South Africa. The existing fuel and lubricants storage facility is located within Kraaifontein Industria, with industrial properties to the east. In the northern direction are industrial properties extending towards the N1 highway and in the southern direction are industrial properties followed by residential properties from approximately 250 m onwards

and Eben Dönges High School located approximately 420 m SE. To the west is an artificial “depression wetland” located adjacent to the site, followed by a railway, and residential properties from approximately 109 m onwards.

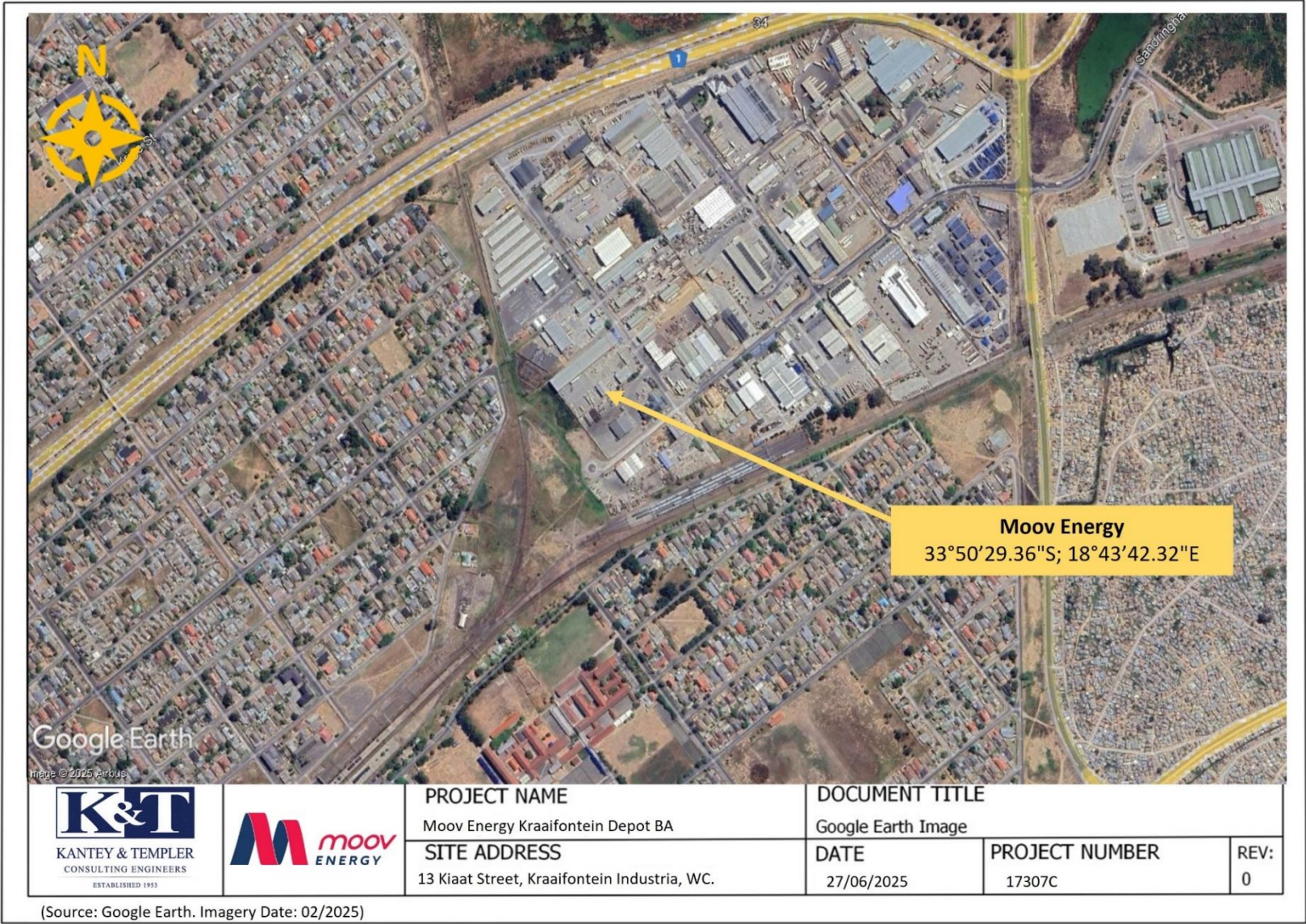


Figure 1: Site Locality Map

2.3 Details and Expertise of the EAP who Prepared the EMPr

The EMPr is prepared by Kantey & Templer Consulting Engineers (Pty) Ltd under the lead of Seoras Graham.

His expertise is as follows:

Qualification	BSc. Hons. Environmental Management
Professional Registration	SACNASP as a Professional Natural Scientist (400420/13)
	EAPASA as a Registered Environmental Assessment Practitioner (2019/1883)
Mr Seoras Graham has more than 18 years of experience in the field of the environment where he has been involved in:	Conducting site inspections and field work
	Drafting basic assessment reports/environmental impact assessment reports
	Reviewing specialist studies i.e. Geotechnical and Traffic Impact Assessment Reports
	Conducting public participation
	Developing Environmental Management Programmes
	Conducting environmental compliance audits and further compiling audit reports
	Conducting environmental contamination assessment reports
	Providing environmental legal opinion with relation to the interpretation of environmental requirements

2.4 Purpose and Structure of the EMPr

The purpose of this EMPr is to manage planning and construction activities to be performed in ensuring that potential impacts on the biophysical and socio-economic environment are minimized. The objectives of this EMPr are to manage the identified impacts by:

- Specifying environmental management measures to be implemented on site by the Contractor,
- Assigning responsibilities for aspects of environmental management to relevant parties, and
- Detailing a system for addressing non-compliance which ensures accountability, reporting and resolution of any non-compliance.

Implementation of the conditions contained in the EMPr is ultimately the responsibility of the proponent although the relevant contractor will be bound to comply with these conditions through the inclusion of the environmental management specification in relevant Contractual Documentation.

This EMPr will be used as a basis of environmental management and will be improved and refined regularly.

3. APPLICABLE LEGISLATION

In all instances the proponent, respective employees and contractors should remain in compliance with relevant local, provincial and national legislation. The Contractors Environmental Representative should be familiar with all legislated requirements as well as permit conditions and agreements. Additionally, the Environmental Representative should be able to communicate these to the relevant persons and to monitor compliance.

The following environmental legislation must be adhered to:

- Constitution of South Africa (Act No. 108 of 1996)
- National Environmental Management Act (Act No 107 of 1998) – NEMA
- Environment Conservation Act (Act No 73 of 1989)
- National Heritage Resources Act (Act No 25 of 1999)
- National Water Act (Act No 36 of 1998)
- Hazardous Substances Act (Act No. 15 of 1973)
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
- Occupational Health and Safety Act (Act No 85 of 1993)
- National Environmental Management: Waste Act (Act No. 59 of 2008)
- National Environmental Management: Air Quality Act (Act No. 39 of 2004)
- National Building Regulations and Building Standards Act 103 of 1977
- Relevant local bylaws

4. ENVIRONMENTAL IMPLEMENTATION PROCEDURES

The environmental procedures specify roles, responsibilities and procedures for the implementation of the EMPr.

4.1 Roles and Responsibilities

The role and responsibilities of various parties associated with environmental management during construction of the proposed project are outlined below.

4.1.1 Proponent

The proponent is ultimately responsible for ensuring the implementation of the EMPr and shall:

- Ensure that the contractor is duly informed of the EMPr and associated responsibilities and implications of this EMPr prior to commencement of the activity,
- Ensure that the contractor's activities adhere to the provisions of the EMPr,
- Monitor the contractor's activities (together with the ECO) with regard to the requirements outlined in the EMPr,
- Ensure that the contractor remedies problems timeously and to the satisfaction of the authorities,
- Appoint an independent and qualified Environmental Control Officer (ECO),
- Notify the ECO should non-compliance issues not be remedied timeously, and
- Ensure that the adjacent landowners / tenants and all I&APs are informed and updated throughout the implementation of the proposed development.

4.1.2 Contractor

The contractor will be appointed by the proponent to undertake the required works on site. The contractor will be responsible for:

- Ensuring that all activities on site are undertaken in accordance with the EMPr,
- Informing all employees and sub-contractors of their roles and responsibilities in terms of EMPr,
- Ensuring that all employees and sub-contractors comply with this EMPr,
- Consulting with the ECO in the case of any uncertainty regarding environmental management requirements, or any activities not covered in the EMPr, which may have a detrimental effect on the environment,
- Reporting any problems to the ECO, and
- Demonstrating respect and care for the environment in which he/she is/are operating.

The contractor will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the EMPr, environmental regulations and relevant legislation.

4.1.3 Contractor's Health, Safety and Environmental Representative

The contractor will appoint/select a suitable officer who will be responsible for the environmental, health and safety management on site. The contractor's Health, Safety and Environmental (HSE) officer will be responsible for ensuring that all activities on site are undertaken in accordance with the EMPr.

4.1.4 Environmental Control Officer

It is recommended that an independent Environmental Control Officer (ECO)/ Environmental Consultant be appointed by the applicant to oversee all the environmental aspects relating to the construction of the site. The environmental consultant should be appointed prior to the construction phase.

The ECO shall be a qualified environmental professional or professional firm with the relevant environmental expertise and shall be responsible for:

- Informing key on-site staff of their roles and responsibilities in terms of the EMPr,
- Undertaking site inspections during the activities to determine compliance with the EMPr,
- Identifying areas of non-compliance, and recommending measures to rectify them in consultation with the proponent and the relevant contractor,
- Compiling the checklist for inspection, in order to identify areas of non-compliance and compliance,
- Liaising with relevant authorities on behalf of the applicant (where necessary),
- Ensuring a follow-up and resolution of all non-compliance, and
- Undertaking a post-construction inspection, this may result in recommendations for additional clean-up and rehabilitation measures if necessary.

In this case the ECO appointed must oversee all the environmental aspects relating to the construction of the site.

4.2 Training and Induction of Employees

Both Moov and the contractor have the responsibility of ensuring that all those involved in the project are aware of the environmental requirements for the project (this includes staff, sub-contractors, casual labour, etc.). The EMPr shall form part of the Terms of Reference (ToR) for all contractors, sub-

contractors and suppliers. All contractors are required to provide some assurance that they understand the EMPr and that they will undertake to comply with the conditions herein.

The contractor must ensure that all construction staff receive basic environmental training, in addition to aspects pertaining to storage and handling of chemicals and potentially hazardous substances, waste management, and prevention of pollution of natural resources. All staff must have access to the EMPr or be aware of where detailed information relating to environmental requirements can be obtained.

Before commencing with any work, all staff members shall be appropriately briefed about the EMPr and relevant occupational health and safety issues.

4.3 Preparation of Method Statements and/or Management Plans

Method Statements and/or Management Plans must be submitted by the contractor to the ECO and must be adhered to by the contractor. These shall relate to water and stormwater management requirements, traffic requirements, solid waste management requirements, storage and handling of hazardous substances, hazardous substance spills, contaminated water treatment, standard emergency procedures, and biohazard control.

The ECO shall monitor the implementation of the Method Statements and/or Management Plans.

4.4 Complaints Register and Environmental Incident Register

Any complaints received must be registered and recorded by the contractor on site. The complaint must be brought to the attention of Moov and the ECO, who will respond accordingly. The following information will be recorded:

- Time, date and nature of the complaint,
- Response and investigation undertaken, and
- Actions taken and by whom.

All complaints received will be investigated and a response (even if pending further investigation) is to be given to the complainant within 7 (seven) days. All environmental incidents occurring on the site will be recorded. The following information must be provided:

- Time, date, location and nature of the incident, as well as
- Actions taken and by whom.

4.5 Auditing and Monitoring

The EMPr implementation procedure is outlined below:

- The ECO shall undertake an initial site visit in conjunction with the relevant contractor,
- The proponent will undertake to ensure the EMPr is implemented, and ensure that copies of the EMPr are available at the offices of the contractor on site,
- The ECO will visit the site to check on the progress of the implementation of the EMPr during construction activities, and
- The ECO will prepare reports at appropriate intervals, detailing any environmental issues, non-compliance and actions to be implemented.

4.6 Non-Compliance with the EMPr

Difficulties may be encountered with carrying out mitigation measures that could result in future non-

compliance. The contractor shall put in place procedures to motivate staff members to comply with the EMPr, and to deal with acts of non-compliance, or malicious damage to the environment.

Penalty fines will be applied for incidents of non-compliance. The penalty imposed will be per incident or violation and such fines will be determined by Moov and the ECO prior to construction commencement.

Such fines must be paid by the contractor to Moov for use in rehabilitation where required.

4.7 Work Stoppage

According to the opinion of the ECO, if an activity will result in environmental damage; the ECO will formally advise the proponent who will, in turn, advise the contractor to halt the activity. The contractor will keep written records of instructions received from the ECO and the proponent concerning environmental matters. Only written instructions for stoppages that have been issued and signed off by the proponent will be considered to be valid instructions to the contractor.

4.8 EMPr Amendments / EMPr Instructions

No EMPr amendments (relaxation or revision of any mitigation measure) shall be allowed without approval from the Western Cape DEADP.

5. PHASES TO BE UNDERTAKEN

This EMPr will be binding to the proponent and the contractors during the development of the site. It is therefore imperative that all parties be familiar with the contents of this EMPr and be clear of the roles and responsibilities of each party. The EMPr has been structured to address the planning phase and construction phase of the development, as outlined below.

5.1 Planning Phase

The EMPr offers an ideal opportunity to incorporate pro-active environmental management measures with the goal of attaining sustainable development during any project stage. Pro-active environmental measures minimize the occurrence of negative environmental impacts during the construction phase of the site. There is still the chance of accidental impacts taking place; however, through the incorporation of contingency plans (e.g. this EMPr) during the planning phase, and during toolbox talks, the necessary corrective actions will be undertaken to further limit potential impacts.

5.2 Early Works and Construction Phase

The bulk of the impacts during this phase will have immediate effect (e.g. noise, dust and water pollution). If the site is monitored on a continual basis during the early works and construction phase, it is possible to identify these impacts as they occur. These impacts will then be mitigated through the contingency plans identified in the planning phase, together with a commitment to sound environmental management from the developer.

5.3 Environmental Objectives

The following Environmental Objectives are recommended:

5.3.1 Reduce Risk to Stormwater and Ground Water Quality on Site

Targets:

- Ensure that the installation of the aboveground tanks does not impact ground water.
- Use environmentally friendly and biodegradable washing liquids to clean the forecourt area.

- Ensure high level of management of stormwater leaving the site during construction.

5.3.2 Improve Waste Management on Site

Targets:

- Ensure waste streams are carefully managed and controlled.
- Construct bunded hazardous waste storage area. Alternately, make use of sealed bins/skips to prevent entry of rainwater into waste bins.
- Safely dispose of hazardous waste, recycle used oils and retain safe disposal records

5.4 Environmental Management Measures

The environmental management measures required for the project (i.e. demolition and construction) are described in Table 1, Table 2 and Table 3 overleaf.

Table 1: Environmental Objectives

Handling of Hazardous and Non-Hazardous Materials			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Location & Establishment of Construction Camp	The construction camp must be marked out with the approval of the ECO.		
	The site camp should be located on a flat portion of land which will be disturbed during construction activity and will therefore be cleared anyway. This is to avoid the necessity of rehabilitating and replanting areas outside of the developable area.		
	The site camp must be clearly demarcated and the site fenced off to prevent illegal entry.		
	The following areas must be demarcated and clearly marked within the construction camp: 1. A waste storage area 2. A material storage area 3. Areas for fuel and hazardous chemicals / flammable goods 4. Stockpile areas 5. Vehicle servicing and wash bay areas (if required) 6. Parking: designated parking areas must be created on site.		
Waste Management	a) sufficient waste bins must be provided within the camps. 1. Storage of waste must be on a hard surface, and under cover. 2. Liquid waste must be situated within a bunded area. 3. Accumulated waste must be removed from site regularly by a recognized waste contractor.		
Material Storage	1. An inventory of the materials and volumes stored must be maintained and updated once a week. 2. Areas for hazardous goods / chemicals / flammable goods must be located within a bunded, hard surfaced impermeable area.		

Lighting & Security	The site must be sufficiently lit, enabling security and policing.		
Handling of Liquids on site	1. Decanting of any liquids / chemicals paints etc. must be done within the confines of a drip tray or on a hardened surface within a bunded area. 2. This must not be carried out on any adjacent site or near to any stormwater drain.		
Storage of Hazardous Materials	Material Safety Data Sheets (MSDSs) for each hazardous substance (including petrol, oils etc) must be kept on site and each substance must be stored and managed in accordance with its MSDS.		
Administration & Records			
Activity / Document	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
EMPr	Keep a hard copy of the EMPr on site at all times.		
	Ensure that all tenants, contractors and staff are aware of the contents and requirements of the EMPr.		
Records	Keep records and proofs of all agreements, meetings etc. so as to demonstrate compliance with this EMPr.		
Proof of Training	Keep training attendance registers on file at all times.		
Incident Records & Photographs	1. Keep records of incidents that have occurred and how they were remediated. It is a good idea to take photographs when incidents occur and then to take follow up pictures to demonstrate remediation and keep these on record. 2. These records must be kept on site for review by the authorities.		
Emergency Response Plan	An emergency response plan must remain on site.		
Permits & Approvals	Keep all necessary permits and approvals on file i.e. site licenses etc.		

Sensitive Social Areas, Environmental Areas and Vegetation			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Community	The community must be made aware of the commencement of construction 30 days prior to construction.		
Wet, Vegetated Area	The artificial wetland area outside the boundary of the site will not be affected by the proposal.		
	No construction material, equipment or waste can be stored this area.		
Alien Vegetation Control	- On-going control of alien vegetation within the site to be maintained (if applicable). - An alien eradication program must be in place to control the spread of alien invasive species on site (if applicable).		
Protection of Sensitive Areas	- Burying of waste on site, and dumping onto adjacent sites or into watercourses, is prohibited. - No spills must be allowed to enter the stormwater system.		
Training & Awareness			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Who should be trained & Frequency of Training	All staff must have basic environmental awareness training, which can be conducted at the same time as the required health & safety training.		
	- Staff must be trained on their environmental responsibilities before commencing work and refresher sessions can be conducted during toolbox talks on specific areas causing problems. - Staff must sign a training register and records of training must be kept.		

Training Content & Staff Conduct	Training must include: • The definition of environment (people + air + soil + water + business). • Reasons for conserving and protecting the environment. • How the following activities can impact the environment: - Not using assigned ablutions, hazardous materials, spills, waste management i.e. use of waste receptacles and waste separation for recycling, vehicle washing, polluting soil & ground water, litter. • What to do to prevent the above impacts on the environment i.e. assign impermeable mixing areas, use of waste receptacles and separation of waste to allow for recycling, how to respond in an emergency and deal with a spill. • Consideration of neighbours. • Use only toilets provided. • No dumping to occur in sensitive areas on site or off site. • Use waste bins provided. • Use drip trays provided. • Do not build fires for any purpose on the site. • Behave in socially acceptable manner, minimise noise and do not use drugs or alcohol on site. • There is to be no hunting of wildlife adjacent to the site and no setting of snares or traps. No animals are to be harmed or harassed.		
Soil, Stormwater Runoff; Erosion			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Stormwater System	An appropriate stormwater management system to ensure the efficient removal of stormwater from the site and to prevent pooling of water or erosion of any adjacent area must be maintained.		
	No contaminated runoff or grey water may be discharged from the site into the stormwater system or surrounding environment.		

	Kitchens / wash areas / basins / sinks must drain to the septic tank / water borne sewage and not to stormwater. Alternately, this can be discharged into a conservancy tank and emptied as required. Tool washing must be done within a container to allow for the capture of grey water generated. This water can then be disposed of via an authorized sewage connection.		
	Stormwater must not be allowed to flow into surrounding properties and must enter existing stormwater channels.		
Stormwater Quality	Only clean stormwater may be diverted to the stormwater system and surrounding areas and precautions must be in place to prevent erosion of channels and surroundings and i.e. stormwater flow may need to be slowed and spread at outlet points if these occur in close proximity to the site.		
	Washings from any vessels or any containers must not enter the stormwater system. These washings are to be contained and removed as waste.		
Incidents	Entry of any substance (i.e. any material or substance that is not clean stormwater) into the stormwater or a water body is considered an incident and must be reported to the City of Cape Town and Department of Water and Sanitation immediately.		
	- The drainage system must be regularly checked to ensure an unobstructed water flow. - Channelled flow must not be permitted to create erosion points. Discharge must be slowed and diffused.		
Housekeeping, Waste Storage Handling and Disposal			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
General Waste Storage	The waste area to be designated and demarcated.		

	Solid waste must be stored in covered, tip proof metal drums to be collected and disposed of by a certified waste contractor. Proof of safe disposal of solid waste must be documented, and these records must be maintained on site.		
Hazardous Waste	Hazardous materials that require disposal (solvents, old fuel / oil etc.) must be disposed of at a registered hazardous landfill site or recycled where possible.		
	These materials must be removed by an appropriate hazardous waste contractor. Proof of appropriate disposal must be kept on record.		
Waste storage and handling and Waste separation	- No waste may be buried or burned on site or dumped on surrounding properties and farmland. - All waste must be disposed of at a licensed waste disposal facility. Proof of disposal must be kept on site at all times.		
	All skips / bins must be covered to contain odours and prevent waste from blowing around the site.		
	Ensure the correct waste containers are used by all site personnel.		
	No illegal dumping is permitted. There must be no dumping on or off site under any circumstances.		
	- Hazardous: Hazardous waste must be stored separately from general waste. - Hazardous waste must be disposed of at an approved hazardous waste landfill and safe disposal certificates must be obtained and kept on site for review by DEADP. - Hazardous waste includes used oils, lubricants, solvents, solvent based paints and cement.		
Resource Use and Conservation (Electricity, Water)			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Water use	Minimise and monitor water use on site.		
	Maintain records of water usage on site.		
Electricity use	Measures to conserve electricity use must be implemented i.e. switch off appliances at the plug point when not in use, switch off lights and computers when not in use, use energy saving bulbs where possible.		

Noise			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Noise Generation and Suppression	Ensure that appropriate level of noise is maintained at all times i.e. loud music and shouting to be discouraged.		
Air Emissions			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Aboveground Tanks	Ensure that the appropriate hoses and pipe connections are used to prevent unnecessary emissions or spills during re-fuelling of the tanks.		
Incidents, Spills and Emergency Response			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Spill kits	Adequate spill kits and containers for spilled and contaminated material to be on standby on site.		
	Keep clearly marked booms and / or absorbent material on site to contain spills if they occur.		
Rehabilitation and Closure			
Activity	Required Action / Remediation to Control Environmental Impact	In place (Yes / No)	Comments
Waste & Spills	- All spillages must be cleaned and contaminated soil must be removed and disposed of appropriately. - All remaining waste bins and / or skips must be removed and disposed of. Records of disposal must be retained. - All excess concrete must be removed from site on completion of works and disposed of. Washing of the excess concrete into the ground is not permitted. - All excess aggregate must also be removed. - Used oil must be collected by a registered used oil contractor and documentation to this effect provided. - Surfaces are to be checked for waste products from activities such as		

	concreting or asphaltting and cleared in a manner approved by the ECO.		
Aboveground Tanks and Fuel	- The aboveground tanks will need to be emptied of all fuel. - The fuel may not be dumped or burned. - The tanks must be removed and either sold or scrapped. - If the tanks are scrapped, it must be ensured that all traces of fuel have been removed. - If the tanks are scrapped, they must be removed by an approved contractor and proof of safe disposal must be retained.		
Soil Rehabilitation	- Soil around the tanks must be tested for contamination. - If any soil has become contaminated it must be removed and disposed of as hazardous waste or decontaminated and remediated. Proof that remediation has been carried out must be retained. - The soil must be re-tested after remediation. - The area where the tanks were removed from must be filled with suitable material and properly compacted.		
Demolition of Concrete Areas	- Unless the buildings and hard surfaced areas are to be re-used for another purpose, they must be demolished. - All concrete rubble must be disposed of at a registered landfill and proof of safe disposal must be retained. - In all areas that were previously hard surfaced, and where these hard surfaces have been removed, the soil must be ripped and topsoil spread over the area. - The soil must be re-seeded with indigenous grass species and maintained until the vegetation has taken.		

6. ENVIRONMENTAL MITIGATION MEASURES

Outlines the potential environmental aspects and impacts that may result from activities associated with the planning and construction of the fuel depot.

Table 2: Planning Phase

PLANNING PHASE					
No	Impact/Issues	Sub-category	Mitigation Measures	Responsibility	Frequency / Timing
1	EMPr	-	- This EMPr must be made available to the main Contractors as well as individual Contractors. - Signed commitment from any Contractors to comply with EMPr must be obtained.	Moov Energy	Once off
2	Appointment of ECO	-	- The developer must appoint an independent Environmental Control Officer (ECO) to monitor the Contractors compliance with the EMPr. - The Contractors must ensure that the construction crew attend an environmental briefing and training session presented by the ECO prior to commencing of site activities.	Moov Energy	Once off
3	Appointment of ESO	-	The Contractors must appoint an Environmental Site Officer (ESO). This person will be required to monitor the situation with a direct hands-on approach and ensure compliance and co-operation of all personnel. ESO must be fluent in the languages spoken by employees.	Main Contractor	Once off
4	Environmental Incidents	-	The Contractors must implement a register to capture any (environmental) incident that might occur and to take corrective action to mitigate an incident and must rehabilitate any residual environmental damage caused by the incident or by the mitigation measures themselves.	Main Contractor	Once off

PLANNING PHASE					
No	Impact/Issues	Sub-category	Mitigation Measures	Responsibility	Frequency / Timing
5	Impacts on Existing Infrastructure, Services and Servitudes	-	- Location of buried utilities that may be present around the site, (including water, electricity, sewage, gas, compressed air, communication) must be included in the plan to avoid them to be damaged. - Should existing infrastructure need to be interrupted for construction/decommissioning purposes, prior approval must be received from the relevant parties, before commencing with decommissioning.	Main Contractor	Once off
6	Site Establishment	-	- The Contractors shall inform the Site Manager of the intended actions and programme for site establishment. - The site layout shall include access points for deliveries and services, and future works.	Main Contractor	Once off
7	ERP	-	An Emergency Response Plan (ERP) must be in place for the site; this must clearly describe emergency procedures and include emergency contact numbers. The ERP must address fire, explosions, accidental spillages and groundwater contamination.	Moov Energy / Main Contractor	Continuous
8	Socio-Economic Considerations	-	The developer should encourage the contractor to hire local labour from local communities (the broader Kraaifontein area), as far as feasible, to maximize the project's benefits to the local economy and to create maximum benefits to the communities.	Moov Energy / Main Contractor	Continuous
			The developer should engage with local authorities and business organisations to investigate the possibility of procuring construction materials, goods and products from local suppliers where feasible.	Main Contractor	Once off

PLANNING PHASE					
No	Impact/Issues	Sub-category	Mitigation Measures	Responsibility	Frequency / Timing
			Sub-contract to local construction companies first where possible to do so, particularly small, medium and micro enterprises (SMMEs) and BBBEE compliant enterprises.	Main Contractor	Continuous
			Employ labour-intensive methods in construction where feasible.	Main Contractor	Once off

Table 3: Decommissioning and Construction (Installation) Phase

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
1	Groundwater, Soil and Surface Water (Freshwater) Contamination & Impacts	Decommissioning of fuel infrastructure	- Tanks, pipelines and pumps are to be drained thoroughly of all products prior to dismantling and removal. This function is to be performed by an accredited fuel products transporter. Certificate of complete product delivery/disposal is to be issued. - Dismantling of equipment is to be performed by an accredited contractor as per Moov's work system requirements. - A specialist consultant should be present during the tank removal process to monitor the subsurface conditions (contamination assessment) and to provide guidance and clean-up measures (disposal pathways and remediation) where required. This phase should involve environmental rehabilitation in the form of soil and groundwater remediation, should contamination be identified. Soil vapour tests and soil contamination analysis will be undertaken by an approved specialist contractor during the removal of the tanks. - Installation of temporary containment bunds and surface water runoff controls around the existing ASTs during disassembly, should they remove the bund before removing the ASTs.	All Contractors and ESO	Continuously (Throughout decommissioning and construction phase)
		Spillages	In case of an accidental spillage of oil/fuel immediate action must be taken to contain and clean the spillage/to remove hydrocarbons (e.g. Rapid Spill or Spilltech).	All Contractors and ESO	Continuously (Throughout decommissioning and construction)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- Emergency procedures and cleaning up operations must be in place prior to construction commencement. - All necessary equipment for dealing with spills of fuels/chemicals must be available on the site i.e. ensure absorbent spill kits and disposal containers on hand to handle spillages during dismantling of equipment and removal of residual product. - In an event of a spill, Contractors will remediate to the satisfaction of Moov Energy.		phase)
		Waste management	- As far as feasible, the Contractor must separate different types of material to facilitate reuse, recycling or disposal thereof. - All off cuts must be reused where possible or recycled. - Separate bins must be provided for hazardous and general waste to ensure correct waste separation. The bins should be clearly marked and lined for safe disposal of waste. - Contaminated material and hazardous waste are to be removed and disposed of at a licensed Class A landfill site by a licensed specialist contractor. Chain of Custody documentation is to be retained on site. - If the fuel storage tanks are not suitable for reuse, a registered waste disposal company must be appointed to transport them to a registered site for cutting and final disposal.	All Contractors and ESO	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- All waste is to be disposed of to a suitably licenced landfill site. - The bins/skips containing general waste must be cleared on a weekly basis and disposed of at a municipal landfill site by a registered waste management company. - Solid waste should be regularly collected from the site for disposal at an appropriately licensed landfill site. - Builder's rubble generated during construction activities is to be correctly disposed of at a registered landfill site. - No building rubble may be used as backfill. - No wastes are permitted to be disposed of into excavations or stormwater drains, burned on site or illegally dumped in the surrounding areas, during or after the construction period. - Collection and disposal of waste metal to a registered site where the equipment will either be scrapped or reused depending on the condition of the equipment. - The Contractor must ensure that staff are educated/encouraged to not litter or dispose of waste in the surrounding environment but to use available facilities for waste disposal. - All waste storage areas on site must be kept tidy on a daily basis. - An adequate number of scavenger proof waste receptacles and/or bins must be strategically placed around the site to collect all domestic waste.		

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- General waste is to be collected in skips for disposal at the local municipal landfill site. - Skip bins must be covered to avoid waste from being blown off. - Clean soil from excavation activities must be reused as fill on the site. - Excess soil and bedrock will be correctly disposed of with certificates of Disposal accompanying the disposal. - Effective management of the waste handling facilities to avoid spills or loss of containment and the risk of refuse being washed into the ground/downstream (confine temporary waste storage areas, bunded areas and/or compacted surfacing to reduce seepage)		
		Storage areas	- Fuel, other chemicals and hazardous materials/substances are to be securely stored on an impervious surface in a designated bunded area, able to contain 100% of the total volume of materials at any given time in order to contain accidental spills or leaks. The integrity of the impervious surface and bunded area must be inspected on a regular basis and maintained when necessary. - The materials storage area must be located in a defined area away from any natural drainage lines and/or stormwater drains and away from the artificial wetland.	Moov Energy and All Contractors	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- Material Safety Datasheets are to be retained on site for the fuels and chemicals stored on site. - Correct measures need to be taken to ensure that no contaminants seep into the soil or ground water. - The construction camp must be placed in an area already disturbed and at least 50 m away from the artificial wetland. - No materials or equipment may be stored outside of the boundaries of the construction camp. - The construction footprint must be well demarcated and fenced off to contain site activities and prevent the dumping of refuse or building waste outside of work areas.		
			Adequate training of contractor staff on the correct storage and handling of hazardous substances (e.g. fuel, oil, cement, etc).	ECO	As necessary
		Vehicles and equipment	- All earthmoving plant, construction vehicles and equipment must be maintained in good working order to reduce the probability of leakage of hydrocarbon fuels and lubricants and provided with drip trays when parked and during refuelling. Drip trays must be inspected for leaks and emptied where necessary. - Restrict areas for refuelling of vehicles and machinery.	All Contractors	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- Maintenance of construction vehicles, earthmoving plant, and equipment is not permitted on site, unless a specific bunded area is constructed for this purpose. - Earthmoving plant, heavy machinery, construction vehicles and/or equipment must be located away from stormwater drains and the artificial wetland when parked/stored for extended periods of time. - If a water pump is required, the water pump must operate inside a drip tray to prevent any spillage of fuel and limit the risk of soil/water contamination. The drip tray will need to be lined with absorbent material and checked daily while in use. - In the event of a breakdown, immediate steps shall be taken to prevent any spillage.		
		Surface runoff	- Adequate stormwater drainage should be constructed and no water should be allowed to pond. - The construction phase of the project must take cognisance of existing drainage lines in the area so as not to disrupt these drainage patterns. - There is to be a periodic inspection of the sites temporary and/or permanent drainage system to ensure that the flow of surface water is not obstructed. - Proposed Storm Water Controls to address runoff as per the SMP include: -Silt fencing	All Contractors and ESO	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			-Instant lawn -Poles (banks) -Drainage pipes -Sandbagging -Earth-berms -Small trenches with small earth-berms -Agricultural trenches • Install stormwater management on the site before construction of the rest of the infrastructure. • Construction should take place in summer as there is a lower likelihood of run-off from the site (associated with rainfall). • Ensure that no water from the construction site enters the adjacent artificial wetland downstream and the catchment drained by the Mosselbank River via existing storm water drains. • Wastewater must not be allowed to come into contact with exposed soils or run across the site. • All wastewaters must be collected in a sealed container and disposed of by an approved specialist waste contractor. Chain of Custody Documentation must be retained on site. • Contaminated or highly turbid stormwater runoff from the construction site, including 'clean' areas, should be collected and treated prior to disposal off-site.		

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- All contaminated water should be immediately removed and disposed of at a registered Class A landfill site or approved recycling facility. - Appropriate berms and surface water runoff controls should be implemented around excavations if necessary.		
		Concrete management	- Excess or spilled concrete should be confined within the works area and then collected and correctly disposed of to a registered landfill site. - All cement/mortar mixing or other hazardous substances handling and dispensing activities must be undertaken on an impermeable surface. - Cleaning of cement related equipment shall be restricted to pre-determined areas. - To prevent spillage onto roads, ready mix trucks shall scrape off the delivery shoot into a suitable sump prior to leaving the site. - Vehicles transporting concrete and other chemicals are not permitted to be washed on site. - Unused cement bags shall be stored where they will not be affected by rain/runoff. - Used cement bags shall be stored properly to prevent them from being blown by wind and potential water contamination. Used bags shall be disposed of appropriately.	Main Contractor and ESO	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
		Erosion	- All exposed bare surfaces during clearing and earthworks must be protected against erosion using rows of sediment barriers (e.g. silt fences, sandbags, earthen diversion berms). - Sediment barriers should be regularly maintained and cleaned so as to ensure effective drainage. - Areas susceptible to erosion must be protected by installing temporary and/or permanent drainage works to prevent surface water from being concentrated in streams. - Ensure that any trenches or excavations are closed and compacted immediately. - Stockpiles of soil/sand should be shaped appropriately to reduce their susceptibility to erosion. - Stockpiles of soil/sand should be covered with a tarpaulin to reduce the effects of wind erosion. - Stockpiled soil should be protected by erosion-control berms if exposed for a period of more than 14 days during the wet seasons. - Stockpiles must be restricted to designated areas and positioned away from existing natural drainage lines/stormwater drains.	Main Contractor	Continuously (Throughout decommissioning and construction phase)
		Ablution facilities	- Construction staff must use temporary chemical ablution facilities provided by the contractor and the use of surrounding areas as a toilet facility must be forbidden. - All temporary/portable toilets are to be maintained in a hygienic state and serviced	All Contractors	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			regularly or as required by a reputable contractor, and the contents are to be removed to a licensed disposal facility. The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied. Toilets must be anchored to the ground to ensure that they don't get knocked or blown over.		
		General	In the event that surface, ground or storm water pollution does occur as a result of activities on the site, the Department of Water and Sanitation must be informed immediately. Any significant spills or leak incidents must be reported in terms of the NEMA section 30.	ECO	As necessary (Throughout decommissioning and construction phase)
			During construction, good site management and environmental practices (compliance with this EMPr) must be ensured by an approved independent Environmental Control Officer (ECO).	ECO	Continuously (Throughout decommissioning and construction phase)
			Completely remove from site all general waste, constructional plant, equipment, surplus rock and other foreign materials once construction has been completed.	Main Contractor	Continuously (Throughout decommissioning and construction phase)
			Install early warning groundwater monitoring points between proposed new tank farm, wash bay, separator and the wetland (these wells	Moov Energy	At the onset of the construction phase

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			must not prohibit construction or be impacted by construction) and be monitored and sampled quarterly, during construction.		
2	Noise impacts	-	- Comply with the City of Cape Town's noise bylaws for industrial areas. - Construction staff working in areas where the 8-hour ambient noise is equal to or exceeds 85 dBA, should be provided with ear protection equipment. - Limit the working hours during the construction phase to between 7:30 am and 6 pm during weekdays, and between 8:30 am and 1 pm on Saturdays. No construction work should occur on Sundays and public holidays. - Contractor is to maintain vehicles and machinery in good working order to minimize noise. - Institute noise control measures throughout the construction phase for all applicable activities. - Provide and maintain all equipment with standard silencers. - A complaints registration process must be established for the construction phase. This must be available to all communities and advertised (e.g. sign boards). This instrument must be available, trustworthy, and fair, and ensure that all complaints of noise emissions are registered, managed and resolved within a 24-hour timeframe in order to be effective.	All Contractors, ESO and ECO	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			Neighbouring landowners should be informed prior to any very noisy activities being undertaken, e.g. high intensity drilling.		
3	Air Quality	Dust	- Comply with the City of Cape Town's air quality bylaws and the National Dust Control Regulations. - Regularly clean and maintain the construction site to prevent the accumulation of dust. - The appointed Contractor is to implement effective dust control measures during his/her activities. - In areas where there is unbound sand or storage piles, make sure that the area has been watered down. Wet unprotected, cleared areas and stockpiles with water to suppress dust pollution. - The contractors and/or subcontractors must wear the appropriate PPE e.g. dust masks. - Soil/sand stockpiles are to be located in sheltered areas where they will not be exposed to the erosive effects of the wind. - In order to minimise the risk of spillage and loss through wind erosion, trucks transporting soil must not be overloaded when conveying soil to and from the site. - Cover materials such as sand, soil and building rubble during transport to and from the site with a tarpaulin. If necessary, make sure loads on trucks are dampened.	All Contractors, ESO and ECO	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- Dust containment measures must be used during period of dry, windy conditions (>40 km/hr), through shade cloth, dust suppression, or other appropriate methods. - Erect wind barriers in high wind situations to prevent dust being blown up from exposed soils and storage piles.		
		Emissions	- Ensure that no refuse wastes are burnt on the premises or on surrounding premises. - Ensure that vehicles and machinery/equipment used are adequately maintained/kept in good working order and meet manufacturer's specifications for safety, fuel consumption etc and are inspected on a regular basis to limit potential emissions and prevent smoke. - A complaints registration process must be established for the construction phase. This must be available to all communities and advertised (e.g. sign boards). This instrument must be available, trustworthy, and fair, and ensure that all complaints of dust emissions are registered, managed and resolved within a 24-hour timeframe in order to be effective.	Contractor and ESO	As necessary
4	Heritage	-	Should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities, all works must be stopped	Contractor and ECO	As necessary

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			immediately, and Heritage Western Cape must be notified without delay.		
5	Fire, Health & Safety Risks	General procedures and emergency preparedness	- Adhere to all applicable specifications and legislation during the construction. - Contractor appointed for construction is to comply with the Occupational Health and Safety Act Regulations (OSHA) current version in its entirety. - All the necessary safety regulations must be abided by including building codes and fire practice requirements. - All staff shall be trained of general fire prevention and control methods as well as responsibilities and fire drills are to be carried out. - The contractor must comply with Moov Energy's Safe Work Practices. - The contractor will prepare a site-specific Health and Safety Plan. - Provision of adequate training to all employees regarding health and safety is necessary. - The Contractor is to appoint a Health and Safety Officer to monitor the safety conditions during the construction phase of the development. - Ensure that the contact details of the police or a security company, ambulance service and fire brigade are available on site. - Provide adequate facilities on site to treat emergencies to staff and/or the public.	Main Contractor	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- The contractor and construction personnel appointed to carry out the construction activities (decommission of existing tanks) must undertake adequate training in emergency response situations. - The Contractors will have to provide their own security arrangements while on site.		
		Prevention of injury/health issues	- Ensure that the handling of equipment and materials is supervised and adequately instructed. - Ensure that construction/delivery vehicles and/or plant are under the control of competent personnel. - Provision of personal protective equipment (PPE) will be made by the Contractor and all employees on site must wear appropriate PPE. - The construction site must be clearly demarcated, have safety signage and be fenced off to limit access to the site to the workforce only and to mark hazards. Site access must be strictly controlled. - Open excavations must be clearly marked. The excavations required to remove the underground tanks require adequate barricading to prevent accidents. - Workers and personnel must be provided with essential services. The Contractor will be responsible for the provision of a worker's camp, including ablution facilities. The standard of these facilities must be to the satisfaction of	Main Contractor	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			the Health and Safety Officer and these facilities must only be removed after completion of all building and construction works. - The ablutions must be emptied regularly and maintained in a working order throughout the construction period, ensuring that there is sufficient toilet paper available in the toilets. - Measures must be taken to prevent standing water creating conditions favourable for diseases. - No unauthorized firearms or weapons shall be permitted on site.		
		Fires and explosions	- Firefighting facilities will be to oil industry standards, which will include hand-held fire extinguishers and a hose reel. These facilities must be approved by the local fire department. - Firefighting equipment must be available on site and routinely inspected by competent personnel. - Minimization of spark quenching by wetting down and/or using construction power tools such as jack hammers under running water. - All fuel on site must be stored in sealed containers to prevent accidental fires and explosions. - All fuel reserves must be removed from the site prior to the decommissioning/dismantling of the existing tanks. - Gas-free certification must take place prior to any dismantling activity commencing, to ensure	Moov Energy and Main Contractor	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			that the tanks are free of flammable/explosive vapours and that they are safe to dismantle (should "hot works" be required) and safe to transport for scrap or recovery.		
6	Geological constraints	-	- The raft foundation will require heavy steel reinforcement to accommodate hogging and/or sagging. - Raft foundation to be steel reinforced top and bottom or at centre to accommodate the possibility of both hogging and sagging. - The layered sands and sandy clays should be wetted and pre-compacted to 93 % Mod AASHTO prior to casting foundations. - An experienced engineering geologist or geotechnical engineer should inspect foundations prior to casting of foundations. - Stormwater and subsurface drainage systems across the site will require regular maintenance and cleaning to prevent flooding after high rainfall events. - The sandy nature of the surface soils across the site indicates that these soils will be susceptible to erosion by water should future excavations of service trenches be carried out. Likewise, appropriate stormwater management and drainage design will be necessary to cope with heavy rainfall events. - Excavations deeper than 1.5 m for service trenches, especially in saturated soils may be unstable and will require shoring or battering of slopes for safety reasons. Sub-vertical open	Main Contractor (Geotechnical Engineer)	

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			cuts to 1.3 m bgl in the dry silty sands will be unstable in the short term and will stabilise at an angle of approximately 40 degrees. Sub-vertical open cuts between 1.3 and 2.0 m bgl in the sandy clays are likely to be stable in the short term but will require stabilization in the long term. • Unsupported excavations for service trenches that are more than 2 m deep in the sandy clays at slope angles steeper than 45° should be assumed to be unstable in areas where the slopes are very moist, or saturated. Excavation crests must not be surcharged or exposed to temporary loads. • It is recommended that any engineered fill be compacted to at least 95% MOD AASHTO beneath foundations and slabs which has bearing pressures of up to 100 kPa, and bearing pressures greater than 150 kPa should be compacted to 98% MOD AASHTO compactive effort. • Should future sections of the site be excavated, the sand fill on the site can be re-used as medium-quality selected engineered fill material provided well-supervised compaction to 100% relative density and provided it is not too wet. • The sandy clayey soils containing high percentages of clay and silt are not suitable for engineered fill as compaction beneath the foundations will be poor. Based on the grading results and experience regarding compaction of		

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			the more clayey silts, these soils are not suitable for use as an engineered fill and will be difficult to compact if wet or dry of optimum moisture content.		
7	Traffic	-	- Scheduling construction related traffic during off-peak hours can help mitigate these impacts and minimize disruption to the surrounding transport network. Large machinery and trucks (construction and delivery vehicles) should not access the site during peak hours (i.e. 6:45 am to 8:15 am and 3:45 pm to 5:30 pm). - If abnormal loads are in transit to or from the site, the required precautions must be taken to ensure public safety, as per the National Department of Transport Regulations (2009). - Ensure that there is sufficient parking and loading space available for vehicles to limit congestion on-site and disruption off-site. - The driver is to abide by the rules of the road obeying the speed limits, road signs and markings. - All vehicles entering the site are to be roadworthy and not overloaded. - Construction and delivery vehicles are to avoid routes through residential areas where possible. - Monitor road conditions before, during and after construction by means of photographs. Roads damaged as a direct result of project activities will be restored to their original condition in consultation with local authorities.	Moov Energy, Contractor and ESO	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			- The use of delivery trucks during construction should be limited to the designated areas. - Co-ordination of movement of vehicles on and off site to reduce risks and prevent congestion on roads in the vicinity of the site.		
			Establish a complaint reporting mechanism (trucks to have contact details to report poor driving as well as site to have contact details to report traffic related impacts associated with the project)	Moov Energy, Contractor, ESO and ECO	Continuously (Throughout decommissioning and construction phase)
			Any incident/accident or damage to a vehicle must be reported immediately.	Moov Energy, Contractor, ESO and ECO	As necessary (Throughout decommissioning and construction phase)
8	Visual	-	- Good site management must ensure that no builders' waste and rubble accumulate on the site (i.e. timely removal) and no unsafe, unhealthy and unsightly conditions develop. - Ensure that no refuse or builders' rubble generated on the premises be placed, dumped or deposited on adjacent/surrounding properties including road verges, roads or public places as well as open spaces during or after the construction period of the development.	Moov Energy, Contractor and ESO	Continuously (Throughout decommissioning and construction phase)

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			• Ensure that all refuse and/or builders' rubble generated on the premises during and after the construction phase be contained and disposed of at a registered landfill site. • Excess soil and bedrock will be correctly disposed of with certificates of Disposal accompanying the disposal. • No waste may remain on the construction site for more than two weeks. Waste receptacles/bins must be provided at strategic places within the construction area, and cleared at regular intervals as required avoiding overflow. • The construction site must be kept in a clean and tidy state at all times. • Excess concrete will be collected and correctly disposed of. • No wastes will be disposed of and buried in the excavations. • Locate the construction camp in a position removed from the adjacent properties. • Care will have to be taken to ensure that the advertising signs blend into the surrounding areas. • Light pollution from the construction phase is expected to be minimal, as the construction area will be kept to a minimum, night-time construction work will not occur, and where possible time-controlled, motion-activated and directional lighting should be utilised.		

EARLY WORKS AND DECOMMISSIONING OF EXISTING TANKS & CONSTRUCTION PHASE					
No	Impact/Issues	Sub-category	Mitigation measures	Responsibility	Frequency / Timing
			Storage facilities and other temporary structures on site should be located in such a way that they have as little visual impact on local residents and businesses as possible.		

7. POST-CONSTRUCTION ACTIVITIES

Site rehabilitation is an essential component of this EMPr and must be carried out in conjunction with the ECO. This guideline is to be used as the basic structure for the site rehabilitation; the specific details must be decided by the PM in conjunction with the ECO.

The requirements for the control of soil, water, dust and noise pollution stipulated in this EMPr still applies during the site rehabilitation phase of the project.

Final rehabilitation shall be completed within a period specified by the ECO, and may entail the following:

- Disassemble all infrastructure units and remove components from the working and storage areas. This will include temporary office and storage structures and containers, power supply, etc.
- Drain all wastewater and sewage associated with the temporary ablution facilities in a controlled manner and transfer the waste to an appropriate wastewater treatment works. Safe Disposal Certificates are to be kept on file for record purposes.
- Excavate all areas of contaminated substrate (if any), transfer the contaminated substrate to an appropriate disposal site and treat the affected areas with appropriate remedial agents.
- Remove sumps and all plastic linings used for pollution control and transfer to an appropriate disposal site. Safe Disposal Certificates are to be kept on file for record purposes.
- Break up all concrete structures that have been created (e.g. working and parking surfaces) and remove concrete waste to an appropriate disposal site. Safe Disposal Certificates are to be kept on file for record purposes.
- Remove all excess construction materials from the storage area and construction site for transfer to the contractor's base.
- Remove all construction debris, litter and domestic waste from the construction site and transfer to an appropriate disposal site. Safe Disposal Certificates are to be kept on file for record purposes.
- Remove all waste receptacles from the camp and working area and transfer to the contractor's base.
- Drain all collection sumps and dispose of the contaminated liquid and solids at a certified recycling facility or Class A Landfill site. Chain of Custody documents must be retained for auditing purposes.

8. CONCLUSION

In terms of the National Environmental Management Act (NEMA), everyone is required to take reasonable measures to ensure that they do not pollute the environment. Reasonable measures include informing and educating employees about the environmental risks of their work and training them to operate in an environmentally responsible manner. Furthermore, in terms of NEMA, the cost to repair any environmental damage shall be borne by the person responsible for the damage.



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