APPENDIX H – EMPr

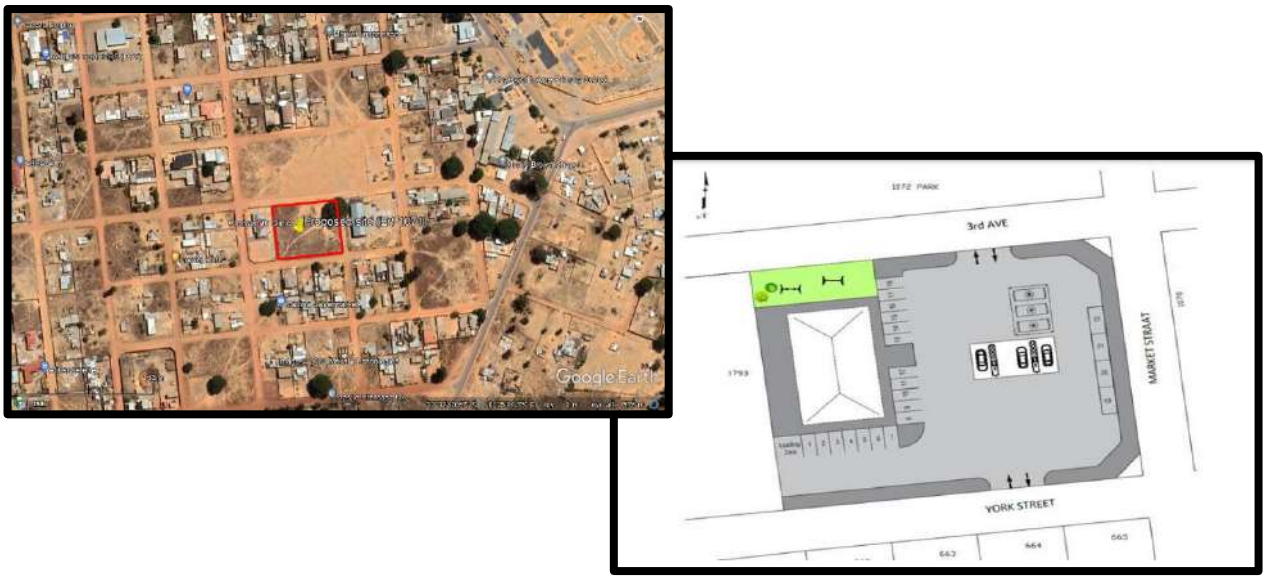
Report Ref.: OTM-SMCFS-EMPr rev.1, June 2022

ENVIRONMENTAL MANAGEMENT PLAN / PROGRAMME

for management of activities to protect the natural environment during construction, operation and maintenance of the

PROPOSED DEVELOPMENT OF A FILLING STATION AND BUSINESS PREMISES

on Erf 1071, Chatsworth, Swartland Municipality, West Coast District Municipality, Western Cape Province



Images:
Top - Proposed development site (outlined in red) on Erf 1071, Chatsworth
Right – Concept layout plans for proposed development of filling station and business premises

June 2022

OVER THE MOON

Prepared by

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for

Swartland Municipality

This report is to be cited as:

Environmental Management Plan/Programme for the development of Swartland Municipality's filling station and business premises, West Coast District Municiplaitry, Western Cape Province. Prepared by Over the Moon Consulting CC for Swartland Municipality. June 2022.

ABBREVIATIONS

DEA&DP	Department of Environmental Affairs and Development Planning
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAPSA	Environmental Assessment Practitioners of South Africa
EC	Environmental Consultant
ECO	Environmental Control Officer
EMPr	Environmental Management Plan/Programme
FSC	Fuel Supply Company
HDPE	High-density Polyethylene
HSE	Health, Safety, and the Environment
HSS	Health, Safety and Security
HWDC	Hazardous Waste Disposal Contractor
H&SP	Health and Safety Plan
LEL	Lower Explosive Limit
LUPA	Land Use Planning Act, No. 3 of 2014
NBA	National Biodiversity Assessment (2018)
NEMA	National Environmental Management Act, No. 107 of 1998
NEMWA	National Environmental Management Waste Act, No. 59 of 2008
NWA	National Water Act, No. 36 of 1998
OHSA	Occupational Health and Safety Act, No.85 of 1993
PID	Photoionization Detector
PM	Project Manager
PMC	Project Management Company / Contractor
PMC Sub-contractor	Project Management Company Sub-contractor
PPE	Personal Protective Equipment
SANS	South African National Standards
SPLUMA	Spatial Planning and Land Use Management Act, No. 16 of 2013
TDS	Total Dissolved Solids
UST	Underground Storage Tank
VOC	Volatile Organic Compound

CONTENTS

1 INTRODUCTION

Over the Moon Consulting CC (OTM) was appointed by Swartland Municipality, to undertake an environmental impact assessment process, which includes the preparation of an EMPr and forms part of the conditions as set out in the environmental authorisation (EA) attached as Appendix H, as well as the recommendations detailed in the basic assessment report (BAR)

This EMPr binds all contractors, sub-contractors and other persons working on the site to adhere to the terms and conditions of the EMPr throughout the planning, design, construction, installation, operation , maintenance and demolition/decommissioning of the proposed development of a filling station and business premises on erf 1071, Chatsworth.

The EMPr has been compiled with the assumption that the installation of subsurface or underground storage tanks (USTs) will be required for the storage of fuel (petrol and diesel) at the proposed filling station and business premises in Chatsworth, Swartland Municipality, Western Cape Province.

It should be noted that Swartland Municipality will not be the actual developer of the proposed filling station but requires environmental authorisation (EA) for land use/rezoning purposes. Should the EA be issued and the land rezoned, the opportunity to develop a filling station would go out on tender and the property would be either leased or sold to the successful tenderer who would then be the prospective developer. The EA would then undergo an amendment application into the name of the successful tenderer/prospective developer prior to construction.

The construction of the filling station and business premises will include the following infrastructure:

- USTs with a combined capacity of not more than 80m^3;
- associated sub-surface pipelines;
- canopy covered fuel pump islands and with fuel pumps/dispensers;
- paved forecourt;

- business premises which may consist of a convenience store; fast food restaurant; office, rest rooms; automatic teller machines (ATMs);
- vehicle access points; and
- open space play/park area.

This EMPr is presented in draft form and will be submitted to the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP). The Proponent / Developer remains responsible for the accuracy and relevance of the information contained in this EMPr.

The EMPr is a 'live' document and makes provision for updating during the detailed design and planning phase, and incorporation of any relevant condition in the EA or EMPr itself.

This EMPr covers the installation of the USTs as well as the construction of the filling station and business premises, including excavation activities for potential new below-ground infrastructure such as the installation of new USTs and pipelines.

A description of the roles and responsibilities of the various parties involved with these activities has been provided. In addition, the potential environmental impacts and associated mitigation measures have been identified for the proposed development.

The project site details are as follows:

Proponent: Swartland Municipality (and current property owner)
Developer: To be awarded to successful tenderer for the development of the filling station and business premises.
Project name: Proposed filling station and business premises on Erf 1971, Chatsworth, western Cape.
Property/Site: Erf 1071, Chatsworth, Swartland Municipality
Property SG Code: C04600010000107100000
Site co-ordinates: 33° 32'41,25"S and 18° 35'3.32"E

EMPr Revision 0: June 2022

1.1 DETAILS OF ENVIRONMENTAL PRACTITIONER

Over the Moon Consulting CC (OTM) was appointed by Swartland Municipality, to undertake the Basic Assessment process, which includes the preparation of an EMPr. OTM is an independent environmental consultancy with no interest in the proposed activity other than fair remuneration for services rendered. Remuneration for services is not linked to approval by decision making authorities and there are no circumstances that compromise the objectivity of this EMPr.

The findings, results, observations and recommendations given here are based on the best scientific and professional knowledge available from information provided and verified, where required, by site visits.

OTM reserves the right to revise aspects of this report, including the recommendations, if new information becomes available which may have a significant impact on the findings of this report.

This EMPr was compiled by Vivienne Thomson in conjunction with information provided by the applicant for environmental authorisation and relevant consultant specialists.

Expertise and *Curriculum Vitae* of Vivienne Thomson included as Appendix A.

1.2 TERMS OF REFERENCE

OTM has compiled this document for Swartland Municipality, as the EA applicant, as well as the future developer of the proposed development, to provide an EMPr for the protection of the natural environment during the operation, maintenance and eventual demolition/decommissioning of the proposed filling station and business premises on erf 1071, Chatsworth, Swartland Municipality, West Coast District Municipality, Western Cape province.

OTM is an independent environmental consulting company that has no interest in the proposed activity other than fair remuneration for services rendered. Remuneration for services is not linked in any way to any decision made by any competent or regulating authority, or any landowner.

The findings, results, observations and recommendations documented in this report are based on the best scientific and professional knowledge available from recognised databases, information provided and online information sources and site visit/s.

Should new information become available which may have a significant impact on the findings presented in this report, OTM reserves the right to review and revise the content of this report, including but not limited to the report recommendations.

Compliance to the EMPr must be monitored by an Environmental Control Officer (ECO) or Environmental Site Officer (ESO) who should visit the site at regular intervals during the various phases of the activity (at least once monthly).

All tiers of the applicant and developer management i.e. the Municipal Manager, Corporate Services Manager, Managing Director (MD), Operations Manager (OM) and Project Manager/Project Contract Manager (PCM), as well as any sub-contractors and supervisors, are responsible to ensure adherence to, and implementation of, the requirements of this EMPr by all involved/associated parties.

2 BACKGROUND INFORMATION

2.1 SITE SETTING

Erf 1071 is predominantly vacant and has been heavily disturbed though activities such as clearing, dumping and infestation of invasive alien plants. Refer to Appendix B (Site Sensitivity Verification Report). The site falls well within the Chatsworth central business district as indicated in Figure 1 below.

Appendix C (Sensitivity Maps) as sourced from the Western Cape Department of Agriculture CapeFarmMapper database indicates that the proposed development site does not encroach on any critical biodiversity areas (CBAs), ecological support areas (ESAs), or national freshwater ecological priority areas (NFEPAs).

The site is currently zoned Open Space 1 and a rezoning application is underway in terms of the Land Use Planning Act, No. 3 of 2014 (LUPA) to allow for the operation of a filling station and business premises.

The property is bordered by three public streets – Third Street to the north, Market Street to the east, and York Street to the south. Access to the proposed development (irrespective of layout), will be via Third and York Streets. Each access point will be a two-way access point to ensure adequate flow of traffic to and from the property. A concept site layout plan is included as Appendix D and indicates the access points and expected surface extent of the development.

A final site layout plan must eventually be provided as Appendix D to this EMPr and must be approved by DEA&DP prior to commencement of construction (which includes site clearance).

The Chatsworth Clinic lies immediately adjacent to the proposed development site on the west and a community hall/church lies immediately adjacent to the proposed development site on the east. Erf 1071 has a small public playground area along the

eastern boundary of the property which will be retained, albeit relocated, on the erf. The land use to the north is public open space with residences to the south.

It should be noted that Swartland Municipality will not be the actual developer of the proposed filling station but requires environmental authorisation (EA) for land use/rezoning purposes. Should the EA be issued and the land rezoned, the opportunity to develop a filling station would go out on tender and the property would be either leased or sold to the successful tenderer who would then be the prospective developer. The EA would then undergo an amendment application into the name of the successful tenderer/prospective developer prior to construction.

Rainfall and Climate

Chatsworth is located in a winter rainfall region and receives approximately 473mm of rainfall per annum primarily during the months of May to September. The annual evaporation is approximately 1 282.5mm per annum..

Terrestrial Biodiversity

A terrestrial biodiversity compliance statement was undertaken by PB Consult after conducting a verification site visit. Observations, findings and recommendations are included below:

“Historically the proposed footprint would have been covered by Atlantis Sand Fynbos, considered ‘Critically Endangered’ in terms of the ‘List of ecosystems that are threatened and in need of protection’, as published in Government Notice 1002 of December 2011.

More recently the 2018 National Biodiversity Assessment (NBA) was published (Skowno et al., 2019a & Skowno et al, 2019b). Although the findings of the 2018 NBA it is not yet formally adopted by NEM: BA in terms of regulations it is important

to consider these findings. According to the 2018 NBA this vegetation is now re-classified as ‘Endangered’.

The site does not overlap any critical biodiversity areas (CBA’s) or ecological support areas (ESA’s) as identified within the 2017 Western Cape Biodiversity Spatial Plan (WCBSP) (CapeNature, 2017). A site visit was conducted on the 14th of May 2022. The site visit confirmed that the site is highly disturbed to the point of being transformed.

The site itself is described as a disturbed open sandy plain characterized by one large Pine tree (Pinusspecies – an invasive alien) and resprouting alien and invasive Port Jackson (Acacia saligna) trees. Only a few hardy indigenous pioneer species and weedy- indigenous or alien plantsremains on site.

There remains no plant species component that might define Atlantis Sand Fynbos. The absolute lack of any representative natural veld or species confirms that the site can only be described as transformed. Various signs of illegal dumping on site were also observed.

The Terrestrial biodiversity theme report also list the dung beetle Scarabaeus (Pachysoma) aesculapius as potentially present Scarabaeus aesculapius is a species of scarab beetles (Scarabaeidae) listed as vulnerable by IUCN. As most of the historical distribution range of Scarabaeus (Pachysoma) aesculapius is within modified or developing coastline, it is regarded as the most threatened South African Scarabaeus (Pachysoma) species. However, it is considered highly unlikely that this species would have survived in the urban area associated with Chatsworth for the following reasons:

• The natural environment had been severely disturbed (and continues to be impacted);
• Its natural fynbos habitat had been replaced by an open sandy transformed site (with almost no protection against predators);
• There is no obvious steady food source (dung) on the property or its surroundings;
• No observations of any beetle were made during the site visit.

The site itself is considered degraded / transformed with no natural veld of any significance remaining. It is also considered highly unlikely that the dung beetle Scarabaeus (Pachysoma) aesculapius still occur on site or in its immediate vicinity. As a result, the sensitivity rating for the Terrestrial Biodiversity Theme for this site should be negligible.

It is considered highly unlikely that the development will contribute significantly to any of the following:

• Significant loss of vegetation type and associated habitat.
• Loss of ecological processes (e.g., migration patterns, pollinators, river function etc.) due to construction and operational activities.
• Loss of local biodiversity and threatened species.
• Loss of ecosystem connectivity

With thew available information it is recommended that the project be approved."

Geology

A preliminary geohydrological and geotechnical investigation was conducted by SKCMasakhizwe Engineers (Pty) Ltd in May 2022. Information from this desktop investigation together with the physical field experience of the author/specialist geohydrologist from other projects undertaken in the area, are included below:

The 1:250 000 Geological Series Map 3318, Cape Town, indicates that the area in the vicinity of the site is characterised by the Quaternary sand of the Springfontyn Formation.

No rocky outcrops were observed on the site. The Quaternary soils are probably thickly developed and are most probably overlie the residual soils and weathered bedrock of the Cape Granite Suite.

No profile pits have been excavated during the impacts assessment process which this EMPr accompanies since detailed design drawings of the subsurface

infrastructure and comprehensive geotechnical studies of the site would only be undertaken by the successful developer and would be included in a revised/amended EMPr to be submitted to the competent authority, DEA&DP as part of the EA amendment application.

Nonetheless, it is apparent from known surficial geology of the site that the geology comprises mainly aeolian sand overlaying residual granitic soils at unspecified but significant depth.

Summary of the general soil profile:

Sand – Aeolian sand should extend to depths of between 2.3m and generally more than 3m throughout the site.

Ferricrete – Dark red-brown and minor light red-brown, layered ferricrete should occur at depth of approximately 2m. It contains thin hardpan layers but it also occurs as a medium gravel with a find to medium sandy matrix in places.

Clayey sand – Light gey, blotched light brown, slightly fissured, clayey medium to course sand, typically occurring at a depth of 2.5m below the ferricrete layer. This soil is transported to the region but its actual origin is unknown. Residual, clayey granitic soils are expected at a depth (probably greater than 3.5m) below the transported soils.

Hydrogeology

Surface water drainage from the site will be overland flow into existing natural drainage features along the roads since there is currently no municipal stormwater system in place. Subsurface drainage is not expected to be required.

According to the CapeFarmMapper database there are no watercourses within 150m of the proposed development site. Although a floodline determination was not undertaken, topographical ground slopes indicate that the Dieprivier at a point

closest to erf 1071 is approximately 60m above mean sea level at a distance of approximately 5.9km from the site. This is well below the lowest point on the proposed development site which has a elevation of approximately 115m above mean sea level.

The site is also separated from the Dieprivier by the existing N7 freeway and is, therefore, expected to be well above the 1:100 year floodline.

In terms of groundwater, no water seepage is expected to be observed above a 2m depth. It is likely that groundwater may be encountered if test pits are to be dug to 2.5m of deeper, as the relatively impermeable clayey sand layer is typically encountered at this depth. The CapeFarmMapper database indicated a typical depth to water table of about 10.5m.

No soil permeability tests have been undertaken as yet but the sands have a typical D_{10} value of 0.1mm to 0.13mm. Using Hazen's formula, the permeability of the sands is most probably around 0.1cm/s and would be classified as moderately permeable. The permeability of the in-situ sands on site should be verified as a potential UST leak may have detrimental impacts on the environment.

2.2 PURPOSE OF THE EMPr

This EMP is a delivery mechanism for environmental mitigation measures that should be implemented during the UST installation works and the construction of the filling station and business premises. The EMP is, therefore, an environmental management tool used to ensure that undue or reasonably avoidable adverse environmental impacts are prevented/mitigated and positive benefits of the project are enhanced.

The outcomes of this EMPr are to:

- ensure that undue or reasonably avoidable adverse environmental impacts are prevented and/or mitigated and that the positive benefits of the project are enhanced;
- enable continuing compliance with South African environmental legislation and EA requirements, as well as project specific method statements / procedures;
- provide assurance to regulators and stakeholders that the EA requirements with respect to environmental performance are being met;
- allow employees and contractors to become familiar with the environmental procedures to be followed and facilitate their compliance with the recommendations made within this document;
- define roles and responsibilities and facilitate understanding by employees and contractors; and
- facilitate monitoring to assess whether management actions are being implemented.

2.3 LEGISLATION, STANDARDS AND GUIDELINES

The environmental legal requirements as the National Environmental Management Act No. 107 of 1998 (NEMA) and EIA regulation (2014), as amended which apply to this development are detailed in Table 1 below:

Activity No/s.	**Relevant Basic Assessment Activity(ies) as set out in Listing Notice 3 of Regulation**	**Description of portion of the proposed development to which the applicable listed activity relates**
10	"The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic meters. i Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. ii. All areas outside urban areas; or iii. iii. Inside urban areas: (aa) Areas seawards of the development setback line or within 200 meters from the high -water ark of the sea if no such development setback line is determined;	The development of a filling station and business premises requires the bulk storage of fuel (petrol and diesel) typically in underground/sub-surface tanks.

	(bb) Areas on the watercourse side of the development setback line or within 100 meters from the edge of a watercourse where no such setback line has been determined; or Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined."	
15	"The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, such land was zoned open space, conservation or had an equivalent zoning, on or after 02 August 2010. f. Western Cape i. Outside urban areas, or ii. Inside urban areas: (aa) Areas zoned for conservation use or equivalent zoning, on or after 02 August 2010; (bb) A protected area identified in terms of NEMPAA, excluding conservancies; or (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act as adopted by the competent authority".	Erf 1071, Chatsworth, is zoned Open Space Zone 1 and contains an existing, small public playground. Application is made to close a portion (±3342m²) of the property in order to rezone the proposed closed portion from Open Space Zone 1 to Business Zone 1 be utilised as a business premises and service station.

Table 1: Legal NEMA related requirements

Other legal and administrative requirements that are relevant to the installation of a UST at the facility are as follows:

- National Water Act (Act No. 36 of 1998);
- National Building Regulations and Standards Act (Act No. 103 of 1977);
- Occupational Health and Safety Act (No. 85 of 1993);
- Noise Control Regulations (PN 5309 of 1998);
- South African National Standards (SANS): Noise, Pipework, Storage of Dangerous Goods in USTs, Portable rechargeable fire extinguishers; and
- Employment Equity Act No 55 of 1998.

It is the responsibility of developer/proponent to ensure that all relevant legal requirements are met during the installation of the USTs and construction of the filling station and business premises.

3 ROLES AND RESPONSIBILITIES

The following parties will be involved in the installation of the USTs. Typically, the Development Owner / Proponent will have formal contracts in place with all the relevant contractors and consultants:

3.1 PROJECT MANAGEMENT COMPANY (if applicable)

The Project Management Company (PMC) or Project Contract Manager (PCM) has been appointed by the Development Owner / Proponent and is responsible for the following:

- project mobilisation and implementation;
- overall project management of the works and PMC Sub- contractor coordination;
- co-ordinating the UST installation works and ensuring appointment of the PMC Sub- contractor;
- discuss with the PMC Sub- contractor at the pre-construction meeting the disposal options for groundwater should it be encountered, and should dewatering be necessary;
- reviewing the Sub- contractor's safe work practices and procedures; and
- conducting random compliance audits during the UST installation (checking permits to work etc.).

3.2 PMC HEALTH, SAFETY, SECURITY AND ENVIRONMENT SPECIALIST

The Health, Safety, Security and Environment (HSSE) Specialist will be responsible for the following: • reviewing and approving the site Health and Safety Plan (H&SP);

- ensuring that the contractor complies with the requirements of the Occupational Health and Safety Act during construction; and

3.3 PROJECT MANAGEMENT COMPANY SUB-CONTRACTOR

The Project Management Company Sub-contractor, hereafter referred to as the PMC Sub- contractor is the Principal Contractor on site and is responsible for all works performed on site, including overseeing the excavation works and the installation of the new USTs and associated infrastructure. The PMC Sub-contractor is also responsible for the following:

• producing a Health and Safety Plan (H&SP) and schedule for all works to be performed on site;
• complying with all legal requirements and the conditions of the contract;
• ensuring the site is barricaded and secured to prevent public access during construction;
• coordinating the safe installation of the USTs and associated infrastructure;
• ensuring the area is safe for excavation (utility clearance and electrical lock out, barricading and signage), excavation planning, managing the excavation process and tank installation process, safe placement/storage of stockpiled soil, backfilling, permitting and health & safety oversight;
• discussing with the PMC at the pre-construction meeting the disposal options for groundwater should it be encountered, and should dewatering be necessary;
• identify and nominate a suitable disposal methodology for water pumped from excavations;
• pumping of water from excavations to a water storage tank, if required; and
• issuing original disposal certificates to the developer/proponent/PCM and copies to the Environmental Consultant.

4 COMMUNICATION PROCEDURES ON SITE

4.1 METHOD STATEMENTS AND EMERGENCY RESPONSE

Any contractors employed will be required to provide method statements for specific activities on request of the PMC or site environmental control officer (ECO).

A method statement describes the scope of the intended work in a step by step description to ensure that those involved understand the Contractor’s intentions. This will enable them to assist in devising any mitigation measures which would minimise environmental impact during these tasks.

This includes the procedures to be followed in the event of a spill or environmental incident e.g. contacting the relevant emergency response personnel and emergency services.

4.2 RECORD KEEPING

All records related to the implementation of this EMP (e.g. audit reports, incident reports, etc.) must be filed by the developer/proponent/PCM in a safe place where they can be easily retrieved.

These records should be kept for the duration of the EA validity period and should, at any time, be available for scrutiny by relevant authorities.

4.3 PHOTOGRAPHS

It is recommended that photographs be taken of the site by the PMC Sub-contractor, the PMC, and/or Environmental Consultant prior to, during and immediately after the site development and specifically the UST installation.

These photographs will provide a visual reference. Other means of recording the development of the project (besides photographs which are the minimum forms of visual record keeping) are video clips and audio recordings of findings on site.

Site photographs should be stored with other records related to this EMPr such as but not limited to, record registers (such as inspection sheets, checklists, attendance lists), specialist, site and audit reports, video recordings and audio recordings of interviews, site inspections.

5 POTENTIAL ENVIRONMENTAL IMPACTS

The section below identifies the potential significant impacts associated with excavation activities for the installation, and operation of the new filling station and

business premises, as well as the proposed mitigation measures and responsible parties.

This EMP is presented in a tabular format section under the following headings:

- Design and Planning Phase;
- Installation/ Construction Phase; and
- Operation Phase

5.1 DESIGN AND PLANNING PHASE

5.1.1 Detailed development drawings and layout plans

A concept layout plan was submitted with the original EA application. Once this EMPr and the site layout plans and designs have been finalised, this EMPr must be updated to reflect any revised mitigation or changes to the layout.

In order to ensure compliance with environmental legislation requirements, the following actions are applicable to the planning phase for construction and installation activities.

A. Planning and Design Phase							
Activity/Aspect		Objective	Management and Mitigation Measures / Actions		Monitoring and Measurement	Responsibility	Frequency / Timing
No.	Description		No.	Commitment / Actions Required / Key Controls			
1	Planning: Design and Administration	Appointment of consultant services for detailed design and Environmental Authorisation (EA) transfer	1.1	Appointment of applicable required consultant services	Appointment form and / or contract agreement	Applicant and future Developer / Proponent	Prior to any development/design
		Undertake specialist engineering studies for development (detailed design drawings)	1.2	Finalise development layout plans / surface and subsurface designs with relevant geotechnical /geohydrological and engineering studies.	Reports; Drawings; regulating authority applications	Relevant Consultant	As required
		Schedule site preparations	1.3	Prepare a project schedule to coordinate vehicle movements, deliveries and construction activities to minimise noise emissions and minimise traffic congestion.	Project schedule sign-off	Developer / Proponent and PMC	Prior to construction / installation
	Planning: Legal and other requirements	Notify all registered Interested and Affected Parties (I&APs) of amended EA decision	1.4	Notify all registered I &APs and key stakeholders of the opportunity to appeal against the EA	Copy of signed approved EMPr available on site	Environmental Consultant (EC) / Control Officer (ECO)	Prior to the start of the works

		Ensure that relevant legal requirements have been met.	1.5	Ensure that relevant legal requirements have been met.	Relevant documentation on record	Developer / Proponent	Prior to the start of the works
		Undertake EA amendment to transfer rights and obligations to Developer / Proponent	1.6	Initiate amendment application with competent authority (DEA&DP) to transfer EA and EMPr	Appointment of EAP; Amendment application submission	Developer / Proponent / EAP	Prior to the start of the works
			1.7	Submit detailed layout / design drawings to DEA&DP for EA and environmental management programme / plan (EMPr) finalisation / authorisation.	Updated EMPr and BAR submitted to DEA&DP	Developer / Proponent / EAP	Prior to the start of the works
2	Design: Legal and Other Requirements	Minimize visual impact on the surrounding residential areas (sensitive receptors)	2.1	Business premises / commercial buildings to ideally be clustered around the filling station court, to avoid visual scatter of isolated buildings	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Design planner/architect	Prior to the start of the works
			2.2	The façades should be modulated to provide scale in sympathy with the surrounding structures/residential developments.	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Design planner/architect	Prior to the start of the works
			2.3	Consideration should be given to surrounding roof structures/heights of buildings. Developer/Proponent's Landscape Plan and	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Design planner/architect	Prior to the start of the works

				PMC visual impact management implementation plan.			
			2.4	A landscape plan should be prepared and form part of the building plan submission to the local authority.	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Landscape planner/designer	Prior to the start of the works
			2.5	As far as possible, all yards and storage areas to be enclosed by masonry walls or screens.	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Design planner/architech	Prior to the start of the works
			2.6	The parking bays should be paved with brick or other unit pavers to minimise expansive asphalt areas.	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Design planner/architech	Prior to the start of the works
			2.7	External lighting should be energy saving and confined to the dispensing forecourt, commercial outlets and other essential areas.	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Design planner/architech	Prior to the start of the works
			2.8	Lights should be low-level, where possible, and fitted with reflectors to avoid light spillage.	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Design planner/architech	Prior to the start of the works
			2.9	Lights and signage should be fixed to buildings or walls, where possible, to avoid unnecessary masts and visual clutter.	Approved site plan and EMPr available on site	Developer / Proponent and PMC; Design planner/architech	Prior to the start of the works
3	Notification of	Notify DEA&DP of	3.1	Notify DEA&DP in	Proof of	Developer /	Prior to

	commencement of construction	the commencement date of construction activities		writing, at least 10 days prior to commencement of site preparation.	communication 14-days in advance of commencement of construction / installation	Proponent and PMC	commencement of construction/ installation
4	Method Statements	Draft and approve method statements	4.1	The following method statements are required: • site layout and establishment; • storage and use of hazardous substances; • concrete mixing / batching plant / area • storage and release / collection of effluent; • solid waste control system; • fire control and emergency procedures; and • oil water separator.	Method statement sign-off	Method statement development: PMC and sub-contractors; Method statement acceptance and sign-off: ECO	Prior to commencement of construction/ installation
5	Design: Plans and specifications	Climate change adaptation and resilience	5.1	Design/layout plans and specifications must take cognisance of climate change impacts: stormwater run-off must be via a hydrocarbon water separator sump before being allowed to leave the site via natural drainage lines; utilise energy saving devices e.g. lighting, solar geysers, where possible	Detailed design and specification drawings/layout plans	Developer; Engineering / environmental consultants; PMC	Prior to commencement of construction/ installation

5.2 CONSTRUCTION/ INSTALLATION PHASE

In order to ensure compliance with the EA and requirements of this EMPr, as well as and other environmental legislation requirements, the following actions are applicable to the installation phase of the USTs as well as the general construction of the proposed filling station and business premises development.

B. Construction (and UST Installation) Phase							
Activity/Aspect		Objective	Management and Mitigation Measures / Actions		Monitoring and Measurement	Responsibility	Frequency / Timing
No.	Description		No.	Commitment / Actions Required / Key Controls			
1	Compliance with EMPr	Confirm Developer's, Project Management Contractor and Site Contractors' commitment to adherence of EMPr	1.1	Ensure that approved EMPr is available on site.	Copy of signed EMPr available on site with signed EMPr Compliance Commitments / Declarations	Developer / Proponent and ECO to obtain relevant commitments / declarations	Prior to construction / installation
			1.2	Ensure that equipment is in place to meet EMPr.	Visual inspections; Audit reports	Developer / Proponent, PMC and site contractors	Throughout all project phases
			1.3	Signed commitment of compliance with the EMPr, from all parties.	EMPr site file; Visual inspections; Audit reports	Developer / Proponent, PMC and site contractors	Throughout all project phases
2	Impacts on existing infrastructure, services and servitudes	Avoid damage or destruction of existing infrastructure on or in the vicinity of the site.	2.1	Prior to beginning any excavation or drilling activities the person(s) conducting the task must be familiar with the location of buried utilities that may be present around the site, (including water, electricity, sewage, gas, compressed air,	Developer's / PMC method statements / procedures as identified in EMPr must be adhered to; Visual inspections; Incident Report	Developer / Proponent, PMC and site contractors	Throughout relevant project phases

				communication).			
3	No-go areas	Designated no-go areas must be adhered to	3.1	Public open spaces adjacent to development site must be demarcated as no-go areas for construction equipment, stockpiling, personnel, vehicles, etc.	Indication of no-go areas as minuted in project management site meeting/s	Developer / Proponent, PMC and site contractors; To be checked by ECO	Prior to the start of construction; On-going during construction
4	Traffic impacts	Adhere to legal and other requirements	4.1	Large vehicle turning must take place on-site and not in the adjacent roads.	Visual inspections; Incident Report; Environmental Control Officer (ECO) and audit reports	Environmental Consultant (EC) / Control Officer (ECO)	Throughout relevant project phases
			4.2	In cases where activities may obstruct traffic / require abnormal vehicles, local traffic officials must be contacted.	Visual inspections; Incident Report; ECO and audit reports	PMC; Environmental Consultant (EC) / Control Officer (ECO)	Prior to the start of the works
			4.3	No vehicles or machinery should be serviced on-site.	Visual inspections; Incident Report; ECO and audit reports	Environmental Consultant (EC) / Control Officer (ECO)	Prior to the start of the works
			4.4	Refueling of construction vehicles on site must be done in line with EMPr requirements	Visual inspections; Incident Report; ECO and audit reports	Environmental Consultant (EC) / Control Officer (ECO)	Throughout relevant project phases
5	Noise impacts associated with construction activities	Manage any potential noise impacts.	5.1	Work should occur during daylight hours only between sunrise and sunset, on week days	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout construction phase

				only.			
			5.2	Site personnel are to wear the appropriate PPE, if and when required.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout construction phase
			5.3	Noise levels must comply with the SANS 100103 – 0994 (recommended noise levels).	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout construction phase
			5.4	The contractor will adhere to local authority by-laws relating to noise control.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout construction phase
			5.5	Mechanical equipment with lower sound power levels will be selected to ensure that the permissible occupation noise-rating limit of 85 dBA is not exceeded.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout construction phase
			5.6	Equipment will be fitted with silencers as far as possible to reduce noise.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout construction phase
			5.7	All equipment to be adequately maintained and kept in good working order to reduce.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout construction phase
			5.8	Neighbouring property occupants must be informed prior to any very noisy activities e.g. high intensity drilling.	Evidence of notification of neighbours	Developer; PCM; Relevant contractor	Throughout construction phase
			5.9	A complaints register must be maintained and corrective and	Procedure / method statement	Developer; PCM; Environmental	Throughout construction phase

				preventative measures procedure / method statement whereby noise complaints can be received, recorded and responded to appropriately.		site officer / ECO	
6	Soil and Groundwater Contamination	To minimise the likelihood of soil and groundwater contamination.	6.1	Cement mixing must be confined to a designated area and must be undertaken on an impervious surface.	Approved site plan Visual Inspection Incident Report	Developer / Proponent and PMC	Throughout construction / installation phase
			6.2	All fuel stored on site must be kept in a bunded containment area.	Approved site plan Visual Inspection Incident Report	Developer / Proponent and PMC	Throughout all project phases
			6.3	Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to catch incidental spills and pollutants.	Approved site plan Visual Inspection Incident Report	Developer / Proponent; PMC and site contractors	Throughout all project phases
			6.4	Drip trays are to be inspected on a weekly basis for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow	Proof of communication 14-days in advance of commencement of construction / installation	Developer / Proponent and PMC	Throughout all project phases
			6.5	All pipework will be double walled and comply with SANS 62- 1 and 2, SANS 1132	Method statement sign-off	Method statement development: PMC, site	On-going during construction / installation

				(pipework).		contractors and sub-contractors; Method statement acceptance and sign-off: ECO and relevant contractor	
			6.6	All fire extinguishers must comply with SANS 1151 (Portable rechargeable fire extinguishers).	Visual inspection; Service logs; Audit reports	Developer / site owner; PMC; Site contractors / tenants	Throughout all project phases
			6.7	The UST installation must comply with SANS 10089 part 1 (storage of dangerous goods in USTs).	Design and engineering specifications / drawings	Developer / site owner; PMC; Relevant contracted consultant	Throughout relevant project phases
			6.8	The USTs must have a secondary containment area to prevent subsurface leaks from seeping directly into the ground.	Design and engineering specifications / drawings	Developer / site owner; PMC; Relevant contracted consultant	Throughout relevant project phases
			6.9	An appropriate storm water management system must be included in the final site layout.	Design and engineering specifications / drawings	Developer / site owner; PMC; Relevant contracted consultant	Prior to construction phase
			6.10	The design must ensure that all runoff from the forecourt is directed into the storm water management system, which must include an oil/water separator.	Design and engineering specifications / drawings	Developer / site owner; PMC; Relevant contracted consultant	Prior to construction phase

			6.11	All construction vehicles will be properly maintained to prevent leaks and will not be serviced on-site.	Design and engineering specifications / drawings	Developer / site owner; PMC; Relevant contractors / consultants	Throughout relevant project phases
			6.12	The buildings will comply with the National Building Regulations and Standards Act No. 103 of 1977, and any relevant district or local/municipal by-laws.	Design and engineering specifications / drawings	Developer / site owner; PMC; Relevant contractors / consultants	Throughout relevant project phases
7	Dust control	Limit fugitive dust emissions / blow-off	7.1	The PMC Sub- contractor will take appropriate measures to minimise the generation of dust as a result of the works. Such measures may include dampening of surfaces with water.	Visual inspection	PMC and Site contractors / sub-contractors	Throughout construction phase
			7.2	Any complaints received from neighbours must be reported to the ECO and PMC and measures must be taken to limit dust.	Complaints register	Developer/site owner; PMC and Site contractors / sub-contractors	Throughout relevant project phases
8	Access control	Minimise health and safety risks to onsite personnel and the public.	8.1	The site must be fenced off to prevent unauthorised access during construction / demolition.	Visual inspection; Audit reports	Developer/site owner; PMC and Site contractors / sub-contractors	Throughout construction / demolition phases
			8.2	All visitors must report to the site office.	Incident Report	PMC, site contractors and sub-contractors	Throughout construction / development phase
9	Waste	Minimize the	9.1	All hazardous material is	Waste disposal	PMC, Site	Throughout all

	management	generation of solid and liquid waste, incl. hazardous waste, which may contaminate the receiving environment (soil, groundwater, sensitive habitats) and adjacent properties. Limit the potential for site pollution and the accumulation of refuse materials on site.		transported to a hazardous waste site for disposal by a licensed removal contractor.	manifest documentation from waste removal contractor. Visual inspection	contractors and sub-contractors; Hazardous Waste Disposal Contractor; Swartland Municipality (domestic waste)	relevant project phases
			9.2	The rubble is disposed of at a licensed municipal landfill.	Waste disposal manifest documentation from waste removal contractor. Visual inspection	PMC, Site contractors and sub-contractors	Throughout construction / development phase
			9.3	Bins/skips shall not be used for any purpose other than waste collection and shall be emptied on a regular basis.	Visual inspection; Audit reports	Hazardous Waste Disposal Contractor; Swartland Municipality (domestic waste)	Throughout all relevant project phases
			9.4	All off-cuts/recyclable material must be reused or recycled, if possible.	Visual inspection; Audit reports; (Waste) manifests	PMC, Site contractors and sub-contractors	Throughout all relevant project phases
			9.5	Soil from excavation activities must be reused as fill elsewhere on the site.	Visual inspection; Landscape plan; Audit reports	PMC, Site contractors and sub-contractors	Throughout all relevant project phases
			9.6	Follow method statement / procedure for Waste Management.	Visual inspection; Audit reports	PMC, Site contractors and sub-contractors	Throughout all relevant project phases
10	Air Quality	Minimize impact on air		Dust suppression	Visual inspection;	Developer /	Throughout all

		quality		methods, such as wetting or laying straw, should be applied where there are large tracts of exposed surfaces.	Complaints register	Proponent and PMC, Site contractors and sub-contractors	relevant project phases
				Stockpiles and spoil heaps must be covered with tarpaulins or straw to prevent fugitive dust.	Visual inspection; Complaints register	Developer / Proponent and PMC, Site contractors and sub-contractors	Throughout all relevant project phases
				All construction vehicles must be appropriately maintained to minimise exhaust emissions	Visual inspection; Complaints register	Developer / Proponent and PMC, Site contractors and sub-contractors	Throughout all relevant project phases
11	Vegetation / landscaping	Climate change adaptation and resilience		Indigenous, climate change sensitive and low maintenance / water-wise landscape design / outdoor plants must be included in the final landscaping design.	Visual inspection and approved site plan	Developer / Proponent and PMC	Throughout construction phase
12	Employment Creation	Enhancement of socio-economic benefits	12.1	As far as possible, local employment must be used to fill any vacant construction jobs.	Employment records; Labour inspections/audits	Developer / proponent, PMC	Throughout construction / installation phase
			12.2	All employment practises for the proposed development site must adhere to legal requirements.	records; Labour inspections/audits	Developer / proponent, PMC	Throughout construction / installation phase
13	Loss of Cultural or Heritage Resources	Legal Compliance and heritage conservation	13.1	If an artefact of potential historical significance is uncovered during construction, work must	Visual inspection	Developer / Proponent and PMC	Throughout construction phase

				Employment stop and Heritage Western Cape must be notified immediately.			
14	Visual Impact	Minimize visual impact associated with construction activities	14.1	The construction/operation and demolition site, material stores, stockpiles and lay-down area should be kept tidy	Contract specification document Grievance Procedure documentation and Visual inspections	Developer / Proponent and PMC	Throughout project life
			14.2	Measures to control wastes and litter should be included in the contract specification documents.	Contracts specifications; Visual inspections/audits	Developer / proponent, PMC, Site contractors/sub-contractors	Throughout project life
			14.3	An environmental management plan / programme (EMPr) should be prepared and an environmental control officer (ECO) employed for the duration of the construction/demolition.	Employment records/contract; Site inspections / audits; EMPr revisions	Developer / proponent, PMC, ECO	Throughout construction / installation, operation and demolition / decommissioning phases
			14.4	Wind-blown dust from stockpiles and construction / demolition activities, should be controlled.	Site inspections / audits; EMPr revisions	Developer / proponent, PMC, ECO, Site contractors /sub-contractors	Throughout construction / installation, operation and demolition / decommissioning phases
15	Stakeholder Consultation	To provide surrounding residents with regular		Develop a complaints / grievance handling method statement /	Method statement / procedure	Developer / proponent, PMC, ECO,	Throughout construction / installation,

		information on the progress of work and its implications; and mange disputes between stakeholders and contractors/ developer.		procedure to ensure fair and prompt resolution of problems arising from the project	documentation	Site contractors /sub-contractors	operation and demolition / decommissioning phases
				Maintain full written records of each grievance case and the associated process of resolution and outcome for transparent, external reporting.	Method statement / procedure documentation	Developer / proponent, PMC, ECO, Site contractors /sub-contractors	Throughout construction / installation, operation and demolition / decommissioning phases
16	Resource management	Use of natural resources	16.1	Promote responsible use of land during project development	Topsoil /Sandy soils management plan (if applicable); Landscape / rehabilitation plan; Visual inspections; Site and audit reports	Developer / PCM; ECO; Sub-contractors	Construction / installation and demolition / decommissioning phases
			16.2	Enhance biodiversity/ climate change resilience, where possible	Visual inspections; Site and audit reports	Developer / PCM; ECO / Site Manager	Throughout project life
			16.3	Promote responsible use of non-renewable resources (e.g. water, hydrocarbons)	Visual inspections; Site and audit reports	Developer / PCM; ECO / Site Manager	Throughout project life
	Climate change adaptation and resilience	Energy efficiency	16.4	Promote the use of energy efficient equipment (e.g. energy saving light bulbs, motion detectors, geysers, etc.) and practises, where	Visual inspections; Site and audit reports	Developer / PCM; ECO / Site Manager	Throughout project life

				possible			
			16.5	Promote the use of energy efficient practises through training and awareness	Visual inspections; Site and audit reports	Developer / PCM; ECO / Site Manager	Throughout project life
			16.6	Promote the use of renewable energy, where possible	Visual inspections; Site and audit reports	Developer / PCM; ECO / Site Manager	Throughout project life
17	Occupational health and safety	To ensure safe handling and installation of the UST and construction of the filling station and business premises.	17.1	All employees, contractors and sub-contractors must comply with legally required regulations and standards in terms of health and safety.	Appropriate health and safety signage must be displayed on site. Visual inspection	Developer / Proponent, PMC and site contractors and sub-contractors	Throughout construction and installation phase
			17.2	Follow legally required regulations and standards for lifting and hoisting.	Visual inspections; Site and audit reports	Developer / PCM; HSSE; Site Manager	During installation / construction phase
			17.3	Follow legally required regulations and standards for excavations.	Visual inspections; Site and audit reports	Developer / PCM; HSSE; Site Manager	Throughout construction and installation phase
			17.4	Open excavations must be clearly marked.	Visual inspections; Site and audit reports	Developer / PCM; HSSE; Site Manager	Throughout construction and installation phase
			17.5	All contractors, consultants and labourers must ensure that the necessary personal protective equipment (PPE) is worn on site.	Visual inspections; Site and audit reports	Developer / PCM; HSSE; Site Manager; Site contractors / consultants	Throughout construction and installation phase
			17.6	Follow legally required	Visual	Developer /	Throughout

				regulations and standards for confined work space.	inspections; Site and audit reports	PCM; HSSE; Site Manager	construction and installation phase
			17.7	The construction site must be fenced off to prohibit unauthorised access and site access must be strictly controlled.	Visual inspections; Site and audit reports	Developer / PCM; HSSE; ECO; Site Manager	Throughout construction and installation phase

5.3 OPERATIONAL PHASE

In order to ensure compliance with environmental legislation requirements, the following generic and specific requirements are applicable during the operational phase of the filling station (including the USTs) and business premises.

Relevant management and/or mitigation action should be included in lease agreements for the business premises that are leased to various enterprises.

C. Operational (and Maintenance) Phase							
Activity/Aspect		Objective	Management and Mitigation Measures / Actions		Monitoring and Measurement	Responsibility	Frequency / Timing
No.	Description		No.	Commitment / Actions Required / Key Controls			
1	Storage of hazardous chemical substances	Ensure filling station and business premises operations adhere to legislated requirements for storage of hazardous chemical substances	1.1	Develop operational method statements / operational procedures for filling station and / or lease agreement clauses for business premises to ensure legal compliance	Method statements / operational procedures; signed lease agreement clauses	Filling station developer / owner / manager; Business premises tenants / leasers / owners	On-going throughout operational and maintenance phases
			1.2	Provision of correct storage facilities for e.g. gas tanks	Visual inspections	Filling station developer / owner / manager; Business premises tenants / leasers / owners	On-going throughout operational and maintenance phases
			1.3	Ensure material safety data sheet for hazardous chemical substances available at relevant business premises	Material safety data sheet for hazardous chemical substances available	Filling station developer / owner / manager; Business premises tenants / leasers / owners	On-going throughout operational and maintenance phases
2	Soil and	Minimise impact to soil	2.1	Regular inspection of all	Developer's /	Developer /	Throughout

	groundwater contamination	and / or groundwater that may occur as a result of spillages and / or leaks		pipes, tanks and other associated infrastructure.	PMC method statements / procedures as identified in EMPr must be adhered to; Visual inspections; Incident Report	Proponent, PMC and site contractors	development / project life
			2.2	Accidental spills that occur outside of the bund area must be contained and prevented from entering the stormwater system.	Indication of no-go areas as minuted in project management site meeting/s	Developer / Proponent, PMC and site contractors; To be checked by ECO	Throughout development / project life
			2.3	Spills must be treated with the appropriate spill absorbent.	Visual inspections; Incident Report; Environmental Control Officer (ECO) and audit reports	Environmental Consultant (EC) / Control Officer (ECO)	Throughout development / project life
			2.4	Where necessary, spill absorbent must be removed by a certified hazardous waste removal company.	Visual inspections; Incident Report; ECO and audit reports	PMC; Environmental Consultant (EC) / Control Officer (ECO)	Throughout development / project life
			2.5	Any significant spills or leak incidents must be reported in terms of the National Environmental Management Act and the Water Act.	Visual inspections; Incident Report; ECO and audit reports	Environmental Consultant (EC) / Control Officer (ECO)	Throughout development / project life
			2.6	USTs must be fitted with automatic leak detectors	Visual inspections;	Environmental Consultant	Prior to construction /

				that alert management to a leak.	Incident Report; ECO and audit reports	(EC) / Control Officer (ECO)	installation
			2.7	Fuel dispenser pumps must be located on a hardened surface to contain spillages.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout development / project life
			2.8	The accumulated contents of the oil/water separator must be removed by an accredited company.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	At regular intervals throughout development / project life
			2.9	The oil/water separator must be inspected regularly to ensure that it is functioning at all times.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout development / project life
			2.10	Water discharged from the oil/water separator must be monitored to ensure it meets the required standard.	Incident report; I&AP complaints register	PMC and site contractors / sub-contractors	Throughout development / project life
			2.11	Overfill and spillages during tanker refuelling and fuel dispensing should be prevented by the installation of automatic cut off devices.	Incident report; I&AP complaints register	PMC and site contractors; FSC; Sub-contractors	Throughout development / project life
			2.12	Tanker delivery drivers must be present during delivery of fuel with the emergency cut off switch.	Incident report; I&AP complaints register	PMC and site contractors; FSC; Sub-contractors	Throughout development / project life
			2.13	In the event of the pump dispenser or the hoses being knocked over or ripped off, the fuel supply	Incident report; I&AP complaints register	PMC and site contractors; FSC; Sub-contractors	Throughout development / project life

				must be cut off by shear-off valves.			
			2.14	All forecourt staff must undergo appropriate training, which must include training to prevent spillages during fuel dispensing.	Evidence of notification of neighbours	Developer / Proponent and PMC; All filling station forecourt staff	Throughout development / project life
			2.15	The USTs, pipelines and other associated infrastructure must be inspected regularly for leaks and to ensure structural integrity.	Evidence of notification of neighbours	Developer / Proponent and PMC; Filling station manager	Throughout development / project life
			2.16	A closed coupling must be used when fuel is being transferred from the bulk delivery vehicle to the USTs.	Evidence of notification of neighbours	Developer / Proponent and PMC; FSC; Filling station manager	Throughout development / project life
			2.17	An Emergency Response Plan must be in place for the site, this must clearly describe emergency procedures and include emergency contact numbers.	Method statement sign-off; Incident report	Method statement development: PMC, Filling station manager; site contractors and sub-contractors; Method statement acceptance and sign-off: ECO	On-going during project / development life
			2.18	If contamination or leakage is detected, the	Method statement sign-	Method statement	On-going during project /

				site's Emergency Response Plan must be followed.	off; Incident report	development: PMC, site contractors and sub-contractors; Method statement acceptance and sign-off: ECO	development life
			2.19	Following a leak or accidental spill, a remediation plan must be compiled and executed.	Method statement sign-off; Incident report	Method statement development: PMC, site contractors and sub-contractors; Method statement acceptance and sign-off: ECO	On-going during project / development life
			2.20	Accidental spills that may occur on the forecourt must be cleaned up immediately using a spill absorbent, which must then be removed by a licenced contractor.	Method statement sign-off; Incident report	Method statement development: PMC, site contractors and sub-contractors; Method statement acceptance and sign-off: ECO	On-going during project / development life
			2.21	Fuel stock must be			

				monitored on a daily basis and these records must be kept on site			
			2.22	USTs must have corrosion protection.			
			2.23	Inspection wells will be installed within the UST containment area, at all four corners of the containment area. These wells must be inspected on a monthly basis so that leaks can be detected early.	Emergency Response Plan; Remediation Plan		Monthly throughout operational and maintenance phase
3	Traffic associated with the bulk delivery of fuel and operation of businesses on premises	Reduce any potential traffic congestion.	3.1	Delivery times should be scheduled so that they do not conflict with other deliveries/ removals.	Visual inspection reports; Incident reporting	Filling station developer / owner / manager	Throughout operational and maintenance phase
			3.2	There is to be sufficient turning space for delivery vehicles.	Visual inspection reports; Incident reporting	Filling station developer / owner / manager	Throughout operational and maintenance phase
			3.3	Ensure sufficient parking for business operations on premises.	Visual inspection reports; Incident reporting	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
4	Air Quality	Minimize impact on air quality	4.1	USTs to be fitted with breather pipes.	Visual inspection;	Filling station developer /	Throughout operational and

					Incident / complaint registers	owner / manager;	maintenance phase
			4.2	Vent pipes to be fitted such that they face away from the neighbouring residential areas, if possible.	Visual inspection; Incident / complaint registers	Filling station developer / owner / manager;	Throughout operational and maintenance phase
			4.3	All delivery vehicles will be adequately maintained to reduce exhaust emissions.	Visual inspection; Incident / complaint registers	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			4.4	A closed coupling must be used when fuel is being transferred from the bulk delivery vehicle to the USTs to prevent fugitive emissions.	Visual inspection; Incident / complaint registers	developer / owner / manager; Fuel supply company	Throughout operational phase
5	Noise	Minimize noise pollution	5.1	A complaints procedure will be established whereby noise complaints can be received, recorded and responded to appropriately.	Procedure available on site; Incident / complaint registers	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			5.2	Equipment such as mechanical equipment, extraction fans,	Incident / complaint registers	Filling station developer / owner /	Throughout operational and maintenance

				refrigerators that are fitted with noise reduction facilities (e.g. side flaps, silencers etc) must be used as per operating instructions and maintained properly.		manager; Business premises tenants / leasers / owners	phase
			5.3	Noise levels should comply with the SANS Code of Practice 100103 – 0994 (recommended noise levels).	Incident / complaint registers	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			5.4	Local by-laws for noise levels must be adhered to	Copies of relevant legislation / by-laws available on site	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			5.5	Noise, especially at night, should be kept to a minimum.	Incident / complaint registers	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
6	Visual Impact	Minimize visual impact	6.1	Litter and waste should be	Contract	Filling station	Throughout

		associated with the day to day operations		effectively managed to avoid visual problems in the area.	specification document Grievance Procedure documentation and Visual inspections	developer / owner / manager; Business premises tenants / leasers / owners	operational and maintenance phase
			6.2	Buildings / business premises façades and landscaping should receive on-going maintenance to avoid visual decay.	Visual inspection	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
7	Employment Creation	Maximize employment benefits	7.1	All recruitment must be in-line with the Employment Equity Act No 55 of 1998.	Staff recruitment statistics; Employment records	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			7.2	Where possible, priority should be given to job seekers from the local area.	Staff recruitment statistics; Employment records	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase

			7.3	Developer/business owners must build the capacity of employees through skills transfer and relevant training.	Staff training proof / records / statistics;	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
8	Health and safety	Minimize occupational health and safety risks to employees as well as surrounding land users and occupiers	8.1	Relevant operational staff must receive training on the correct operation of the storage tanks, as well as maintenance and repair procedures when leaks are detected.	Procedures / methods statements; Staff training proof / records / statistics;	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			8.2	An emergency response plan must be available on site and employees must be familiar with the plan.	Procedures / methods statements; Staff training proof / records / statistics;	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			8.3	The correct PPE should be used on the site.	Signage; Staff training proof / records / statistics;	Filling station developer / owner / manager; Business premises tenants / leasers /	Throughout operational and maintenance phase

						owners	
			8.4	Appropriate Health & Safety signage must be placed on and around the and hazardous substances storage areas / tanks.	Visual inspection; Staff training proof / records / statistics;	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			8.5	Fire extinguishers and sand bags must be readily available onsite and easily accessible.	Visual inspection; Incident records	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			8.6	Fire fighting equipment must comply with SANS 1151 (Portable rechargeable fire extinguishers - Halogenated hydrocarbon type extinguishers), and be inspected regularly.	Visual inspection; Incident records; Service logs	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			8.7	No smoking may be permitted on filling station site.	Staff training proof / records / statistics;	Filling station developer / owner / manager; Business premises tenants /	Throughout operational and maintenance phase

						leasers / owners	
			8.8	Overfill and spillages during tanker refuelling and fuel dispensing should be prevented by the installation of automatic cut off devices.	Design specifications; Visual inspections	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase
			8.9	Tanker delivery drivers must be present during delivery of fuel with the emergency cut off switch and a fire extinguisher.	Visual inspection; Incident records; Delivery logs	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout operational and maintenance phase

5.4 DECOMMISSIONING PHASE

A decommissioning EMPr has been included below. It must however be noted that this EMPr must be updated prior to decommissioning since a significant amount of time would have lapsed by the time the propose development is decommissioned.

The proponent / developer and / or owner of the development at the time of decommissioning must liaise with DEA&DP prior to decommissioning to confirm decommissioning requirements.

A detailed rehabilitation and landscape plan should also be compiled and submitted to the relevant authorities for approval/comment prior to decommissioning of the development and specifically the UST area.

D. Decommissioning (and demolition) Phase							
Activity/Aspect		Objective	Management and Mitigation Measures / Actions		Monitoring and Measurement	Responsibility	Frequency / Timing
No.	Description		No.	Commitment / Actions Required / Key Controls			
1	Update EMPr	Ensure that the EMPr is up to date and appropriate for the decommissioning task	1.1	Ensure that the up-dated and approved EMPr is available on site	Method statements / operational procedures; signed lease agreement clauses	Property owner and / or decommissioning project manager	Prior to decommissioning phase
			1.2	Ensure local environmental authorities (DEA&DP) have been informed about the decommissioning activities	Visual inspections	Property owner and / or decommissioning project manager	Prior to decommissioning phase
			1.3	Ensure that equipment is in place to meet EMPr and excavation / demolition plan requirements.	Material safety data sheet for hazardous chemical substances available	Property owner and / or decommissioning project manager	Prior to decommissioning work on site
			1.4	Signed commitment from any sub-contractors to compliance with EMPr.	Copy of signed EMPr with commitment declarations available on site	Property owner and / or decommissioning project manager	Prior to decommissioning work on site
2	Soil and groundwater contamination	Minimise contamination of soil and / or groundwater	2.1	Inspection of pipes, tanks and other associated infrastructure	Developer's / PMC method statements /	Developer / Proponent, PMC and site	Prior to the start of decommissioning

		that may occur as a result of spillages and / or leaks		before decommissioning / demolition to determine volume of residual fuel / hydrocarbon / gas	procedures as identified in EMPr must be adhered to; Visual inspections; Incident Report	contractors	/ demolition
			2.2	Residual product will be removed from the USTs and associated infrastructure and the USTs will be degassed before removal.	Indication of no-go areas as minuted in project management site meeting/s	Developer / Proponent, PMC and site contractors; To be checked by ECO	Prior to decommissioning / demolition; On-going during decommissioning / demolition
			2.3	Soil samples will be obtained from the base and sides of the UST excavation to verify that the site is unimpacted and does not pose a contamination risk to human or the environment.	Visual inspections; Incident Report; Environmental Control Officer (ECO) and audit reports	Environmental Consultant (EC) / Control Officer (ECO)	On-going during decommissioning / demolition
			2.4	Waste manifest documentation must be forwarded to Site Owner / PMC	Visual inspections; Incident Report; ECO and audit reports	Hazardous waste Removal Contractor (HWRC); Site Owner; PMC; Environmental Consultant (EC) / Control Officer (ECO)	On-going during decommissioning / demolition
			2.5	Backfill material must be unimpacted. The removal of soil from the UST excavation must be	Visual inspections; Incident Report; ECO and audit	Environmental Consultant (EC) / Control Officer (ECO)	On-going during decommissioning / demolition

				in accordance with the specifications of the excavation plan.	reports		
			2.6	Environmental consultant/ control officer to be on-site to screen soil VOC concentrations to ensure appropriate handling of impacted soil (ie bioremediation at an appropriately licensed facility) or reuse of the soil as backfill onsite.	Visual inspections; Incident Report; ECO and audit reports	Visual inspections; Incident Report; ECO and audit reports	On-going during decommissioning / demolition
			2.7	Accidental spills that occur outside of the bund area must be contained and prevented from entering the stormwater system.	Indication of no-go areas as minuted in project management site meeting/s	Developer / Proponent, PMC and site contractors; To be checked by ECO	Prior to decommissioning / demolition; On-going during decommissioning / demolition
			2.8	Spills must be treated with the appropriate spill absorbent.	Visual inspections; Incident Report; Environmental Control Officer (ECO) and audit reports	Environmental Consultant (EC) / Control Officer (ECO)	On-going during decommissioning / demolition
			2.9	Where necessary, spill absorbent must be removed by a certified hazardous waste removal company.	Visual inspections; Incident Report; ECO and audit reports	PMC; Environmental Consultant (EC) / Control Officer (ECO)	On-going during decommissioning / demolition
			2.10	All demolition / decommissioning staff must undergo appropriate training,	Evidence of notification of neighbours	PMC; Environmental Consultant (EC) / Control Officer	On-going during decommissioning / demolition

				which must include training to contain and / or prevent spillages.		(ECO)	
			2.11	An Emergency Response Plan must be in place for the site, this must clearly describe emergency procedures and include emergency contact numbers.	Method statement sign-off; Incident report	Method statement development: PMC, site contractors and sub-contractors; Method statement acceptance and sign-off: ECO	On-going during decommissioning / demolition
			2.12	If contamination or leakage is detected, Emergency Response Plan must be followed.	Method statement sign-off; Incident report	PMC, site manager / contractors and sub-contractors; ECO; HWRC	Throughout decommissioning / demolition phase
			2.13	Any contaminated soil must be removed and disposed of by the Hazardous Waste Disposal Contractor to prevent potential impacts on groundwater.	Visual inspection; Incident reporting	Filling station developer / owner / manager; ECO; HWDC	Throughout decommissioning / demolition phase
			2.14	Records must be maintained by the Removal Contractor indicating where the material came from and that it is not contaminated.	Visual inspection; Incident reporting	Filling station developer / owner / manager; HWRC; ECO; Contractors;	Throughout decommissioning / demolition phase
			2.15	An clean / empty containment tank will be present on site in the	Visual inspection; Incident	Filling station developer / owner /	Throughout decommissioning / demolition

				event that groundwater has to be pumped out of the UST excavation and into a containment tank.	reporting	manager; Business premises tenants / leasers / owners	phase
			2.16	If any pollution/ contamination of water resources or soil is detected during the decommissioning of the tanks, the Department of Water and Sanitation must be informed and appropriate remediation measures should take place.	Visual inspection; Incident reporting; Incident / emergency response procedure / method statement	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase
3	Traffic impacts associated with the filling station decommissioning, UST removal and demolition equipment, as required	Manage any potential traffic congestion.	3.1	Peak traffic hours should be avoided	Visual inspection; Transportation plan; Incident reporting	Filling station developer / owner / manager; HSSE	Throughout decommissioning / demolition phase
			3.2	Co-ordination of movement of vehicles on and off site to reduce risks and prevent congestion on roads in the vicinity of the site.	Visual inspection; Incident reporting	Filling station developer / owner / manager	On-going during decommissioning / demolition
			3.3	No vehicles or machinery should be serviced or refuelled onsite	Visual inspection; Incident reporting	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase

			3.4	Large vehicle turning must take place onsite and not in the adjacent roads or open space properties.	Visual inspection; Incident reporting	Filling station developer / owner / manager; Contractors; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase
			3.5	In cases where activities may obstruct traffic, local traffic officials must be contacted			On-going during decommissioning / demolition
4	Air Quality	Dust control to limit fugitive dust emissions	4.1	The Contractor will take appropriate measures to minimise the generation of dust as a result of the works. Such measures may include wetting of surfaces and covering of soil stockpiles.	Visual inspection; Incident / complaint registers	Filling station developer / owner / manager;	Throughout decommissioning / demolition phase
			4.2	Any complaints received from neighbours must be reported to the PMC site manager and measures must be taken to limit dust.	Visible fugitive dust during inspections; Incident / complaint registers	Filling station developer / owner / manager;	Throughout decommissioning / demolition phase
5	Noise impacts associated with decommissioning activities	Manage any potential noise impacts	5.1	Inform surrounding businesses about the decommissioning and the expected duration thereof.	Proof of I&AP communication; Incident / complaint registers	Filling station developer / owner / manager; Business premises tenants / leasers / owners	On-going during decommissioning / demolition

			5.2	Decommissioning activities to occur during working hours only (8am- 5pm).	Incident / complaint registers	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase
			5.3	Contractors to be conscious of the noise generated during their decommissioning activities, and should limit excessive noise wherever possible.	Incident / complaint registers	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase
			5.4	Where possible, decommissioning equipment should be installed with silencers.	Audio-visual inspection; Incident records; Service logs	Filling station developer / owner / manager; Business premises tenants / leasers / owners	On-going during decommissioning / demolition
			5.5	Ear plugs and other applicable Personal Protection Equipment (PPE) must be used by workers on-site, as required.	Record of PPE issued; Visual inspections	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase
			5.6	The developer / applicant will adhere to local authority by-laws	Copies of relevant legislation / by-		Throughout decommissioning / demolition

				relating to noise control	laws available on site		phase
6	Visual Impact	Minimizing visual impact to surrounding receptors	6.1	Fencing of decommissioning area and attaching shade cloth, where necessary.	Visual inspection	Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase
			6.2	Unwanted / unnecessary structures should be demolished and removed from the site.	Visual inspection	Filling station developer / owner / manager; Business premises tenants / leasers / owners	On-going during decommissioning / demolition
			6.3	Redundant parking and other paved areas should be broken up and the site re-instated or redeveloped.			On-going during decommissioning / demolition
7	General refuse (refers to all domestic /general site refuse).	Limit the potential for site pollution and the accumulation of refuse materials on site.	7.1	Additional covered bins must be made available on site. • All refuse must be removed from site by the contractor and disposed of at a registered facility.		Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase
			7.2	Daily inspection must be undertaken of the proposed site and immediate surrounds.		Filling station developer / owner / manager;	Throughout decommissioning / demolition phase

						Business premises tenants / leasers / owners	
			7.3	All excavation rubble must be collected into a skip and disposed of, as and when required.		Filling station developer / owner / manager; Business premises tenants / leasers / owners	Throughout decommissioning / demolition phase
8	Waste generation NB. Old tanks, pipes and pumps are the primary "waste" generator during decommissioning together with minor quantities of rubble. Contaminated soil and groundwater may also be present.	Minimize the generation of solid and liquid waste, incl. hazardous waste, may contaminate the receiving environment (soil, groundwater, sensitive habitats) and adjacent properties.	8.1	All hazardous material is transported to a registered hazardous waste site for disposal by a licensed contractor.			Throughout decommissioning / demolition phase
			8.2	The rubble is disposed of at a registered landfill site, with proof of disposal certificates submitted to Site Owner / Developer and PMC			
			8.3	Solid waste must be properly managed and disposed of in a licensed waste disposal facility and must comply with relevant legislation.			
9	Impacts on existing infrastructure, services and servitudes	Avoid damage or destruction of existing infrastructure in the near vicinity of the proposed activities.	9.1	All underground utilities will be located prior to excavation or drilling.	Visual inspection and incident report	Removal Contractor, and	Throughout decommissioning / demolition phase
			9.2	Prior to beginning any excavation or drilling			

				activities the person(s) conducting the demolition must be familiar with the location of buried utilities that may be present around the site. These include water, electricity, sewage, gas, compressed air, communication and, close circuit television			
			9.3	Should existing infrastructure need to be interrupted for decommissioning purposes, prior approval must be received from the relevant parties, before commencing with decommissioning.			
10	Safe handling of the UST	Minimise risk of spillage during tank removal		Ensure fuel has been removed from the UST	Visual assessment; ECO report; Environmental audit report	Removal Contractor, Environmental Consultant, and	As required during decommissioning / demolition phase
				Pipes and vents must be disconnected and removed before the tank is lifted.			
				The UST must be securely fastened before transportation via truck from the site.			
11	Vibrations (if	Minimizing the impacts	11.1	Decommissioning	Visual	Removal	Throughout

	applicable)	of vibrations on surrounding receptors		activities causing vibration will only be undertaken during working hours only (8am- 5pm).	inspection and incident report	Contractor; Site Owner / Developer; PMC; ECO	decommissioning phase
			11.2	Equipment will be used as per operating instructions and maintained properly during project works			
			11.3	The applicant will adhere to local authority by-laws relating to noise control.			
12	Access control	Minimise environmental exposure and health and safety risks to on-site personnel and the public.	12.1	The work area must be fenced to prevent unauthorized access to working areas.	Visual inspection; Incident Report	Contractor; PMC	Prior to and throughout decommissioning
			12.2	Only designated workers, supervision and nominated personnel will be allowed in work areas.	Visual inspection; Incident Report	Contractor; PMC	Prior to and throughout decommissioning
			12.3	Relevant signage must be placed in and around the proposed site, for purposes of awareness.	Visual inspection; Incident Report	Contractor; PMC	Prior to and throughout decommissioning

6 SPECIALIST ASSESSMENT CONCLUSIONS AND RECOMMENDATIONS

6.1 Biodiversity

(Specialist: PB Consult)

It is considered highly unlikely that the proposed development will lead to any significant impact on any remaining vegetation or fauna species of significant conservation value. In fact, the terrain and its immediate surroundings are considered transformed because of activities associated with urban areas.

Recommendations on impact minimization are thus limited to good environmental control:

i. A suitably qualified Environmental Control Officer should be appointed to monitor the construction phase, specifically pollution and waste management.
ii. Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO.
iii. An integrated waste management approach must be implemented during construction.

6.2 GEOHYDROLOGICAL AND GEOTECHNICAL

(Specialist: SCKMasakhizwe Engineers (Pty) Ltd)

According to the Specialist report attached as Appendix G2, “No significant geohydrological or geotechnical constraints are apparent in the study area which is therefore considered suitable for the development of a fuel station.”

i. The proposed filling station will need to conform to the standard industry mitigation measures for developing a filling station to ensure no contamination occurs on site.

ii. The permeability of the in-situ sands on site should be verified, as a potential fuel tank leak may have detrimental environmental effects.

iii. It is recommended that a groundwater monitoring system be installed on site.

iv. Site clearance and preparation would probably include removal of existing vegetation and litter/dumped rubbish. If densification of the soils is the foundation solution selected for the site (after the USTs are installed) then bulk excavation and temporary stockpiling of the sandy soils may be required. All organic/decomposable and compressible material should be removed from the stockpiled sandy soils during this process and discarded as there is not indigenous seed bank to preserve. If densification as a foundation solution is to be used, the exposed subgrade should be compacted to a depth of at least 1m to at least 95% of mod AASHTO maximum dry density with a ten tonne smooth drum, vibratory roller.

v. Depending on the extent of the earthworks, some shaping/landscaping may also be required. Soft excavation conditions will prevail.

vi. The sand placed in filled areas should be compacted to at least 98% of mod density at a moisture content within 2% of optimum moisture content.

vii. Compaction testing (DCP or nuclear densimeter) should be specified and undertaken on a routine basis at the intervals specified in the relevant sections of SANS 1200D (Standard Specifications for Civil Engineering Construction Section D: Earthworks).

viii. Oi-site sandy soils will be suitable in the construction phase for bulk filling, structural fill, backfill below surface beds and backfill of service trenches. It will also be suitable for bedding of piping provide that the specifications of SANS 1200LB are relaxed.

ix. The principal road layerworks materials will have to be imported, as will coarse and fine aggregate for concrete.

x. Site preparation for the roads/driveways and parking areas would include excavation of the road bed and possibly removal of vegetation if it was not removed during site preparation/clearance of the general site. The subgrade conditions will then comprise in-situ sandy soils or sandy fill which have low saturated CBR's and are generally classified as G9 materials.

xi. The subgrade in the road bed and parking areas should be compacted to at least 98% of mod AASHTO dry density to ensure G7 conditions or the layerworks design should be based on a G8 subgrade if a compaction of 95% is specified.

Special Precautionary Measures should include:

i. Inspection of all foundation trenches and DCP testing in the trenches to ensure the structural design is in accordance with the ground conditions actually encountered.
ii. Measures should be instituted to safeguard workers in service trenches from collapse of the trench sidewalls.
iii. The ground should be shaped to ensure that no ponding occurs against the building.
iv. Subsurface services should be designed and constructed so that they are located sufficiently far from buildings that their backfilled trenches do not interfere with the foundations of other structures.
v. Excess clean soils such as from the road bed or service trenches should not be spoiled on the general site area without formal preparation and compaction of the subgrade and formal compaction of the soiled material.
vi. The trial pit positions should be identified during the initial phases of development and special compaction or other special founding measures may be required to ensure the founding conditions for future roads/parking are adequate (if internal access road/parking is to be constructed in phases).
vii. Groundwater monitoring boreholes or observation wells (to a depth of slightly deeper than the USTs) should be installed on site, with the relevant mitigation measures and best-practice procedures being utilised to ensure no contamination of the subsurface takes place.
viii. A rapid response or emergency preparedness plan/procedure/method statement must be developed prior to the start of works should any hydrocarbon leaks/spillages occur.

7 CONTACT DETAILS AND EMPr COMMITMENT SIGNATURES

7.1 RELEVANT CONTRACT PERSONNEL

Name Contact Person Contact Numbers

Project Management Company

Developer’s / Proponent’s contact person Environmental Consultant

PMC

Sub-contracted: Hazardous Waste Disposal Contractor

7.2 SIGNATURES INDICATING UNDERSTANDING OF AND COMMITMENT TO EMPr AND EA

EA Applicant: _____

Signature:_____

Date:_____

Developer / Proponent: _____

Signature:_____

Date:_____

Project Management Contractor/Main Site Contractor:_____
_____

Signature:_____

Date:_____

Note: A similar form to the one detailed above i.e. indicating an understanding of the contents of the EMPr and EA, as well as a commitment to fulfilling the requirements of the EMPr (and consequently applicable requirements of the EA), must be completed and signed by the designated representative of every contractor and sub-contractor involved in on site project development and retained as Appendix F of this EMPr.

8 APPENDICES

Appendix A: EAP *Curriculum Vitae* and Expertise

Appendix B: Site Sensitivity Verification Report

Appendix C: Sensitivity Maps

Appendix D: Concept and Final (when available) Site Layout Plan

Appendix E: Detailed subsurface and surface layout and design drawings

Appendix F: Signed forms indicating understanding of and commitment to EMPr

Appendix G: Method Statements

Appendix H: Approved environmental authorisation (if granted)

Appendix I: Other significant project/site documentation

Appendix A: EAP *Curriculum Vitae* and Expertise

Curriculum Vitae:

Vivienne Thomson

(née Cornelius)

Education

2004 - 2005: **University of the Witwatersrand Johannesburg**

MSc (Environmental Science) – Coursework completed *in lieu* of BSc Honours degree; Dissertation to be completed

(Certified academic transcripts available on request)

1991 - 1995: **University of Cape Town Cape Town**

BSc (Zoology)

- Graduated: 12 December 1995

(Certified academic transcripts available on request)

Short courses attended include but are not limited to:

An ISO 14001 lead Auditors Course (WTH Management and Training); Environmental Impact Assessment (Potchefstroom University); Basic Principles of Ecological Rehabilitation and Mine Closure (Potchefstroom University); Introduction to Environmental Management (Potchefstroom University); Environmental Law (Potchefstroom University); Advanced Environmental Law (Mandela Institute, Wits University); Bio-fouling and Bio-corrosion Workshop (University of Pretoria); Root Cause Analysis Technique (IRCA); Environmental Performance Measurement Workshop (African Centre for Energy and Environment); NOSA Environmental Seminar; NOSA Five Star System Workshop; Standardised Victim Support Training (FAMSA, Western Cape).

(Certificates for short courses available on request)

Languages

Proficient in English and Afrikaans

Work Experience

Vivienne holds a BSc in Zoology from the University of Cape Town (1995) and has over twenty years industry experience in the construction, power generation and mining sectors. She has completed an ISO 14001 Lead Auditors course, as well as several environmental short courses and has guest lectured for the MSc in Environmental Science Environmental Impact Assessment (EIA) course at the University of the Witwatersrand.

Vivienne is a member of the National Association for Clean Air (NACA) and has served as a NACA National Council Member. She is an affiliate of the Institute of Innovators and Inventors. She was also a member of the Committee of Interested Parties which acted as an independent, advisory body to ensure impartiality of Pricewaterhouse Coopers' Certification Body in their governance and sustainability division.

Since 2004, Vivienne has been involved in environmental consulting with experience in EIAs, establishing and implementing ISO 14001 EMSs, contract management, legal compliance evaluations, as well as developing, implementing and assessing environmental management plans and monitoring programmes.

Individual Awards/Commendations Received

- Selected as finalist for Managers Award, Lethabo Power Station, Eskom — 2001
- Winner of Managers Safety, Health and Environmental Award, Lethabo Power Station, Eskom — 2002
- Winner of Sterling Performance Managers Award, Lethabo Power Station, Eskom — 2004
- Recipient of National Association for Clean Air (NACA) Post-graduate Studies Bursary (Environmental Law) — 2005

Company Awards/Commendations Received

- Runner-up (Service Provider of the Year) Managers Award, Grootvlei Power Station, Eskom — 2009
- Winner (Service Provider of the Year) Managers Award, Grootvlei Power Station, Eskom — 2010

Memberships/Committee Positions Held

- National Association for Clean Air (Individual Member) — 1997 to date
- Secretary for the Vaal Triangle Branch of the National Association for Clean Air (NACA) — 2003 to 2009
- National Council Member of NACA — 2008 to 2011

- Member of Air Pollution Action Committee NGO in the Vaal Triangle — 2001 to 2005
- One of three industry representatives selected to represent industry sector on the steering committee of the Vaal Triangle Strategic Environmental Assessment Process — 2004 to 2006
- Acting chairperson for the Vaal Triangle Branch of NACA during the region's co-ordination of the Department of Environmental Affairs Legotla/NACA Annual Conference — 2009
- Independent committee member on the Pricewaterhouse, Coopers (Pty) Ltd. ISO Certification Committee of Interested Parties — 2009 to 2013
- South African Coal Ash Association (Past Individual Member)
- Institute of Innovators and Inventors (Affiliate)

Consulting Project Summary

No.	Project Type and Title	Project Duration	Client	Role and Responsibilities
1	Environmental Management Plan for Protected and Conservation Areas' in the Swartland Municipality	11/11/2020 - On going	Swartland Municipality	**Lead environmental consultant.** Development of environmental management plan (EMP) and management of specialist team for protected and conservation areas' EMP in Darling, Malmesbury and Yzerfontein, Swartland Municipality, Western Cape. All public participation (including liaison with community forums) undertaken by Vivienne Thomson.
2	EIA: Feldspar Mine, Kenhardt District, Northern Cape	01/02/2020 - In progress	EnviroAfrica CC for the Verneujk Pan Trust	**Lead EAP**. DMR online (SAMRAD) application with EMPR development throughout project life-cycle. Public participation also co-ordinated and undertaken by Vivienne Thomson. Awaiting DMR&E decision on application.
3	EIA: Visserspan Solar PV Facility - Project 1	21/10/2019 - 30/11/2020	EnviroAfrica CC for Ventura Renewable Energy (Pty) Ltd	**Lead EAP**. Application for <100MW solar PV facility in REDZ 5. All public participation (including liaison with community forums) undertaken by Vivienne Thomson. Environmental authorisation granted.
5	EIA: Visserspan Solar PV Facility - Project 2	21/10/2019 - 30/11/2020	EnviroAfrica CC for Ventura Renewable Energy (Pty) Ltd	**Lead EAP**. Application for <100MW solar PV facility in REDZ 5. All public participation (including liaison with community forums) undertaken by Vivienne Thomson. Environmental authorisation granted.
6	EIA: Visserspan Solar PV Facility - Project 3	21/10/2019 - 30/11/2020	EnviroAfrica CC for Ventura Renewable Energy (Pty) Ltd	**Lead EAP**. Application for <100MW solar PV facility in REDZ 5. All public participation (including liaison with community forums) undertaken by Vivienne Thomson. Environmental authorisation granted.
7	EIA: Visserspan Solar PV Facility - Project 4	21/10/2019 - 30/11/2020	EnviroAfrica CC for Ventura Renewable Energy (Pty) Ltd	**Lead EAP**. Application for <100MW solar PV facility in REDZ 5. All public participation (including liaison with community forums) undertaken by Vivienne Thomson. Environmental authorisation granted.

No.	Project Type and Title	Project Duration	Client	Role and Responsibilities
8	EIA: Calcutta Public Cemetery and Memorial Park (PC&MP) development	13/06/2017 - 20/09/2019	EnviroAfrica CC for Stellenbosch Municipality	**Lead EAP.** Application for Stellenbosch public cemetery and memorial park development. All public participation undertaken by Vivienne Thomson. Environmental authorisation granted.
9	EIA: Sand Borrow Pit on Plot 2372, Alheidt, Kenhardt District, Northern Cape	06/03/2019 - 25/10/2019	EnviroAfrica CC for the Verneujk Pan Trust	**Lead EAP**. DMR online (SAMRAD) application with EMPR development throughout project life-cycle. Public participation also co-ordinated and undertaken by Vivienne Thomson. Environmental authorisation granted.
10	EIA: Louw's Bos PC&MP development	13/06/2017 - 21/01/2020	EnviroAfrica CC for Stellenbosch Municipality	**Lead EAP**. Application for Stellenbosch public cemetery and memorial park development. All public participation undertaken by Vivienne Thomson. Environmental authorisation granted. Decision appealed.
11	EIA: Steynville Sewage Treatment Plant Development	21/10/2019 - 08/06/2020	EnviroAfrica CC for BVi Engineering (Pty) Ltd	**Lead EAP**. Application for Steynville Sewage Outfall Pipeline Development in Hope Town, Thembelihle Municipality, Northern Cape. Environmental authorisation granted.
12	EIA: Vanrhynsdorp Solar PV Facility	27/10/2017 - 08/05/2018	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	**Project EAP**. Application for development of <20MW solar PV facility in non-REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation granted.
13	EIA: Mount Roper Solar PV Facility	12/02/2017 - 07/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	**Project EAP**. Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation granted.
14	EIA: Danielskuil Solar PV Facility	12/02/2017 - 07/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	**Project EAP**. Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation granted.

No.	Project Type and Title	Project Duration	Client	Role and Responsibilities
15	EIA: Disselfontein Solar PV Facility	12/02/2017 - 07/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	**Project EAP**. Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation granted.
16	EIA: Keimoes Solar PV Facility	12/02/2017 - 04/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	**Project EAP**. Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation granted.
17	EIA: Kakamas Solar PV Facility	12/02/2017 – 9/11/2017	EnviroAfrica CC for Keren Energy Holdings (Pty) Ltd	**Project EAP**. Application for development of <20MW solar PV facility in non REDZ area. Vivienne Thomson also undertook all public participation for the project. Environmental authorisation granted.
18	Klaarstroom Waste Water Treatment Plant Upgrade	01/06/2017 - 30/09/2017	EnviroAfrica CC for BVi Engineers	**Internal reviewing EAP** and liaison with regulating authorities
19	EIA: Harmony Dam, RE Farm Houdenbek 415, Ceres	01/09/2019 - In progress	EnviroAfrica CC for Sarel Bester Engineers	**Internal reviewing EAP** and liaison with regulating authorities pre-Scoping and EIR process
20	EIA: Toeka Dam, RE Farm Houdenbek 415, Ceres	01/09/2019 - In progress	EnviroAfrica CC for Sarel Bester Engineers	**Internal review EAP** and liaison with regulating authorities pre-Scoping and EIR process
21	EIA & applicability checklists: Several telecommunication mast/tower developments	2017 - 2022	EnviroAfrica CC for Atlas Tower (Pty) Ltd; Eagle Towers (Pty) Ltd	**Lead EAP/environmental consultant**
22	Mixed use residential development feasibility study (La Motte)	10/05/2019 – 28/06/2019	EnviroAfrica CC for Rumboll and Partners (Pty) Ltd	**Lead EAP/environmental consultant**.

No.	Project Type and Title	Project Duration	Client	Role and Responsibilities
23	Housing/residential development environmental compliance assessments and management programme development	02/05/2017 – 31/10/2018	EnviroAfrica CC for De Roodezandt, Robertson	**ECO** - undertook all ECO assessments, reporting and stakeholder liaison.
24	Established ISO 14001 certified environmental management systems Medupi Power Station	01/07/2012 - 30/09/2013	Parsons Brinckerhoff for Eskom, CED	**Environmental consultant.** Developer and implementer of environmental policy, procedures and management programmes. Established legal registers and undertook training and internal auditing.
25	Established ISO 14001 certified environmental management systems Kendal Power Station	01/10/2011 - 30/06/2012	Eskom, Generation Division	**Environmental consultant** and implementer for policy, procedure and management programme development. Established legal registers and undertook training and internal auditing.
26	Environmental Manager; Established ISO 14001 certified environmental management systems Grootvlei Power Station	01/10/2000 – 31/08/2004	Eskom, Generation Division	**Environmental consultant** and implementer for policy, procedure and management programme development. Established legal registers and undertook training and internal auditing.
27	Air/emission and water use licence applications for Grootvlei Power Station	01/05/2007 - 30/04/2011	Eskom, Generation Division	**Environmental consultant** and applicant representative with authorities.
28	Feasibility study on the potential for a	01/07/2009	Eskom, Corporate Division	**Environmental consultant**

No.	Project Type and Title	Project Duration	Client	Role and Responsibilities
	flue gas desulphurisation gypsum market	- 30/11/2009		
31	Gap analyses on the environmental requirements of return to service of Grootvlei Power Station	01/07/2005 - 31/09/2005	Eskom, Generation Division	**Environmental consultant**
32	Established ISO 14001 compliant environmental management system at Ash Resources and conducted EIAs	28/08/2004 - 30/06/2007	Ash Resources (Pty)	**Environmental consultant** and implementer for policy, procedure and management programme development. Established legal registers and undertook training and internal auditing.

Appendix B: Site Sensitivity Verification Report

Appendix C: Sensitivity Maps

Appendix D: Concept Site Layout Plan

Appendix E: Detailed subsurface and surface layout and design drawings

Appendix F: Signed forms indicating understanding of and commitment to EMPr

Appendix G: Method Statements

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Appendix I Other significant project/site documentation