WEMBEZI JUNXION

COMMERCIAL DEVELOPMENT

Environmental Management Programme

Environmental Authorisation: (to be assigned)

Report prepared for:

Klipplaats Family Trust
P. O. Box 436
Estcourt
3310

Report prepared by:

Metamorphosis Environmental Consultants
P O Box 2116
Link Hills
3652

May 2022

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ACRONYMS

CA	Competent Authority
cEO	Contractor's Environmental Officer
Contr	Contractor
DEO	Developer's Environmental Officer
DFFE	Department of Forestry, Fisheries and Environment
DPM	Developer's Project Manager
DSS	Developer's Site Supervisor
EA	Environmental Authorisation
EAR	Environmental Audit Report
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EMPr	Environmental Management programme
ERAP	Emergency Response Action Plan
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
OH&SA	Occupational Health and Safety Act
SDS	Safety Data Sheet

REFERENCES

1) National Environmental Management: Waste Act (59/2008)

2) NEM:WA National Norms and Standards for the storage of waste. GN R926, November 2013.

3) National Environmental Management Act (107/1998): Environmental Impact Assessment Regulations, 2014 (as amended 2017). GN R 982, December 2014.

4) Occupational Health and Safety Act (85/1993), as amended.

5) Hazardous Substances Act (15/73)

6) SANS 10089-3:2010 The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations

7) SANS 1200: Standardised specifications for civil engineering construction. (DM Earthworks)

1. INTRODUCTION

Metamorphosis Environmental Consultants has been appointed by the Klipplaats Family Trust to compile an Environmental Management Programme (EMPr) for the proposed Wembezi JunXion commercial and light industry development on Portion 51 (of 7) of the Farm Klipplaat Drift Farm No 1009, uThukela District Municipality in KwaZulu-Natal.

The facility is required to be planned, constructed operated in accordance with an EMPr, to be drafted as per Appendix 4 of GNR 982 of the EIA Regulations 2014, and as amended. The EMPr offers management and mitigation measures for potential impacts that have been identified to be associated with the planning, construction and operation of the facility.

A copy of the EMPr must be kept on site at all times.

2. SITE INFORMATION

Owner of the Property: Klipplaats Family trust
Contact Person: Mr Dave Moore
Tel No: 083 798 4741
Postal Address: P. O. Box 436, Estcourt, 3310
Email: dlmafricantrading@gmail.com

3. EMPR OBJECTIVES AND SCOPE

The objective of the EMPr is to prescribe accepted impact management outcomes and impact management actions to be used for the avoidance, management and mitigation of impacts and risks associated with the planning, construction and operation of the facility.

It is of vital importance that the requirements of the EMPr are clearly understood by the project team and that compliance is achieved.

This EMPr provides a detailed plan specifying actions to be performed in specific areas, as well as general principles that should be implemented by the developer to adequately address the environmental management of this site.

4. DETAILS OF EAP

Full Name	Vicki King
Company Name	Metamorphosis Environmental Consultants
Cell phone	076 420 1441
Email	vicki@metamorphosisdbn.co.za
Years' experience	30 years
Professional Affiliation	International Association for Impact Assessment (SA), IWMSA, ELA, EAPASA Certified (Reg No: 2016-15), PrSciNat.
Areas of expertise	All aspects of IEM, Audits and compliance, EMPrs, EIA, sustainability, environmental training and facilitation, waste management licence applications.

5. ROLES AND RESPONSIBILITIES FOR EMPR IMPLEMENTATION

The effective implementation of the EMPr is dependent on established and clear roles, responsibilities and reporting lines within the institutional framework. This section of the EMPr gives guidance to the various environmental roles and reporting lines.

The team responsible for the implementation of the EMPr includes:

- Developer's Project Manager (DPM): To be appointed by the Developer
- Developer's Site Supervisor (DSS): To be appointed by Developer
- Developer's Environmental Officer (DEO): To be appointed by Developer
- Environmental Control Officer (ECO): Suitably qualified independent environmental specialist to be appointed by the Developer
- Contractor(s) (Contr): To be appointed by the Developer
- Contractor's Environmental Officer (cEO): To be appointed by Contractor
- All Staff: All people employed on site, including temporary, permanent and contract workers.

Responsible Person	Role and Responsibilities
Developer's Project Manager (DPM)	Role: Accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). To appoint and liaise with the ECO and any contractors on site. To provide and give a mandate to enable the ECO to perform responsibilities, and ensure ECO is integrated as part of the project team, while remaining independent. Responsibilities: • To be fully conversant with the conditions of the EA; • to ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); • To issue site instructions to the Contractor for corrective actions required; • To monitor the implementation of the EMPr throughout the project by means of site inspections and meetings; • Overall management of the project and EMPr implementation; and • Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer's Site Supervisor (DSS)	Role: Reports directly to the DPM, oversees site works, and liaises with the contractor and the ECO. Responsible for the day-to-day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements of the EMPr. Responsibilities: • To ensure that all contractors identify a contractor's Environmental Officer (cEO); • To be fully conversant with the conditions of the EA; to oversee site works, liaise with the DPM, contractor(s) and the ECO; • To ensure all landowners have the relevant contact details of the site staff, ECO and cEO; • To issue site instructions to the Contractor for corrective actions required; • To issue all non-compliances to contractors; and • To ratify the Monthly Environment Report.
Developer's Environmental Officer (DEO)	Role: The DEO will report to the DPM and is responsible for implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the DPM and Contractor(s), liaising with contractors and the landowners as well as a range of environmental coordination responsibilities. Responsibilities: • To be fully conversant with EMPr; • To be familiar with the recommendations and mitigation measures of the EMPr, and implement these measures; • To ensure that all stipulations within the EMPr are communicated and adhered to by the Employees and Contractor(s); • To confine the development site to the demarcated area;

	• To conduct environmental internal audits with regards to the EMPr and authorisation compliance (of cEO); • To assist the contractors in addressing environmental challenges on site; • To assist in incident management; • To report environmental incidents to the DPM and ensure that corrective action is taken, and lessons learnt shared; • To assist the Contractor in investigating environmental incidents and compile investigation reports; • To follow-up on pre-warnings, defects, non-conformance reports; • To measure and communicate environmental performance to the Contractor; • To conduct environmental awareness training on site together with the ECO and cEO; • To ensure that the necessary legal permits and / or licences are in place and up to date; and • To act as the Developer's Environmental Representative on site and work together with the ECO and the contractor(s).
Environmental Control Officer (ECO)	<u>Role:</u> To have the appropriate training and experience in the implementation of environmental management specifications. To act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. To conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation. To be available to advise on incidental issues that arise. To provide feedback to the DPM and the DSS regarding all environmental matters. The Contractor, cEO and DEO are answerable to the ECO for non-compliance with the Performance Specifications as set out in the EA and EMPr. To provide feedback to the DPM and DSS regarding all environmental matters. Issues of Non-compliance raised by the ECO must be taken up by the DPM, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the DPM. The ECO must also, as specified by the EA, report to the CA as and when required. <u>Responsibilities:</u> • To be aware of the findings and conclusions of all EA related to the development; • To be familiar with the recommendations and mitigation measures of this EMPr; • To be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; • To undertake regular and comprehensive site inspections / audits of the construction site according to this EMPr and applicable licences in order to monitor compliance as required; • To educate the construction team about the management measures contained in the EMPr and the EA; • To compile and administer an environmental monitoring plan to ensure that the environmental management measures are implemented and effective; • To monitor the performance of the Contractors and ensure compliance with the EMPr; • In consultation with the DSS order the removal of person(s) and / or equipment which are in contravention of the specifications of the EMPr and / or EA; • To liaise between the DPM, Contractors, Authorities and other lead stakeholders on all environmental concerns; • To compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr; • To validate the regular site inspection reports, which are to be prepared by the cEO; • To check the cEO's record of environmental incidents (spills, impacts, legal transgressions, etc.) as well as corrective and preventive actions taken; • To check the cEO's public complaints register in which all complaints are recorded, as well as action taken; • To assist in the resolution of conflicts; • To facilitate training for all personnel on site – this may range from carrying out the training, to reviewing the training programmes for the Contractor(s); • In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure the matter is addressed. Should no action or

	insufficient action be taken, the ECO may report this matter to the authorities as non-compliance; • To maintain, update and review the EMPr; and • To communicate all modifications to the EMPr to the relevant stakeholders.
Contractor(s) (Contr)	Role: Overall responsibility for ensuring that all work, activities and actions linked to the delivery of the contract are in line with the EMPr and the EA. Ensuring compliance with the EMPr while performing the onsite activities as per their contract with the Project Developer. Each contractor to appoint a cEO. Responsibilities: • For project delivery and quality control for the development services as per appointment; • To employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; • To ensure the safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; • To attend on-site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; and • To ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in the EMPr, to the satisfaction of the ECO.
Contractor's Environmental Officer (cEO)	Role: The cEO can be the site agent, site engineer, a dedicated environmental officer, or an independent consultant, but must be suitable qualified to perform the necessary tasks, and must interact effectively with other site contractors, labourers, the ECO and the public. The cEO is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). Responsibilities: • Be on site throughout the duration of the project and be dedicated to the project; • To ensure that all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; • To implement the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr and Method Statements; • To attend the environmental site meetings; • To undertake corrective actions where non-compliances are registered within the stipulated timeframes; • To report back formally on the completion of corrective actions; • To assist the ECO in maintaining all the site documentation; • To prepare the site inspection reports and corrective action reports for submission to the ECO; and • To assist the ECO with preparing the monthly report.
All Staff	Role: To attend all training offered and to implement the measures as set out in the EMPr. Responsibilities: • To familiarize themselves with and understand the content of the EMPr; • To ensure compliance with applicable Occupational, Health and Safety Act (Act 85 of 1993) and all legislative requirements; • To notify the cEO, dEO or ECO of any activities undertaken which may have a negative impact on the environment; • To be trained as required; • To have access to a first aid box, emergency procedures and numbers to be contacted in case of an emergency; • To ensure spillages are cleaned up as they occur; • To ensure that the facility operates in accordance with the EA and EMPr; and • To ensure that the site is neat, clean and tidy at all times.

External specialists, appointed as and when required, to ensure legal compliance may include, amongst others, the following:

- Occupational Health and Safety Specialist: Suitably qualified and registered OH&S specialist.

6. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place as a minimum requirement.

6.1 Document Control / Filing System

The holder of the EA is solely responsible for the upkeep and management of the EMPr file. As a minimum all documentation detailed below will be stored in the EMPr file, which must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

Documentation to be available in the EMPr file (on site):

- Full copy of the signed EA;
- Full copy of the EMPr and any amendments;
- Completed environmental checklists;
- Completed environmental audit reports;
- Minutes and attendance register of environmental site meetings;
- Up-to-date environmental incident log;
- Copies of all instructions or directives issued;
- Copies of all corrective actions signed off; and
- Complaints register

6.2 Weekly Environmental Checklist & Report

The ECO is required to complete a Weekly Environmental Checklist. The ECO is required to sign and date the checklist, retain a copy in the EMPr file and submit to the DSS on a weekly basis.

The checklists will form the basis on the Monthly Environmental Report. Copies of all completed checklists will be attached as Annexures to the environmental Audit Report as required in terms of the EIA Regulations.

6.3 Environmental Site Meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees.

Each set of minutes must clearly record “Matters for Attention” that will be reviewed at the next meeting.

6.4 Environmental Incidents Log and Complaints Register

The ECO is required to maintain an up-to-date and current Environmental incident Log. All environmental incidents and / or non-compliances occurring on the site will be recorded in the log; the log to be kept in the EMPr file. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECO;
- An environmental impact resulting from an action or activity by a contractor or employee in contraventions of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant impact; and
- General environmental information such as spillages, etc.

The following information must be recorded for each environmental incident:

- Time, date, and location of the incident;
- Description of the incident;
- The name of the contractor or staff member responsible;
- The incident must be listed as significant or minor;
- If significant, a non-compliance notice must be issued and recorded in the log;
- Remedial or corrective action taken to mitigate the incident; and
- Record of repeat minor offences by the same contractor or staff member.

Any complaints received from the community must be registered and recorded by the operator on site.

The complaint must be brought to the attention of the Site Manager and ECO, who will respond accordingly. The following information will be recorded:

- Name and contact details of the complainant
- Time, date and detailed description of the complaint;
- Investigation undertaken and response; and
- Actions taken and by whom.

All complaints received will be investigated and a response (even if pending further investigation) is to be given to the complainant within seven (7) days.

The complaints register to be kept with the incident log in the EMPr file.

6.5 Non-Compliance

A non-compliance notice will be issued to the responsible contractor or staff member by the ECO via the Site Manager. The non-compliance notice will be issued in writing and a copy filed in the EMPr file and will at a minimum include the following:

- Time and date of non-compliance;
- Name of the responsible contractor or staff member;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date on which the corrective actions must be implemented; and
- The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice.

Corrective action records must be recorded and signed off by the ECO.

6.6 Corrective Action Records

For each non-compliance notice issued, a documented corrective action must be recorded.

On receiving a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing to the ECO. If satisfied that the corrective actions has been completed, the ECO must sign off on the Corrective Action Report, and attached the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report has been signed off by the ECO.

6.7 Environmental Monitoring / Auditing

Internal environmental monitoring of the activity and implementation of the EMPr will be undertaken by the ECO. The findings and outcomes must be included in the EMPr file, must be submitted to the CA at intervals as indicated in the EA.

An environmental audit report must be prepared monthly. The report must be tabled as the key point on the agenda of the Environmental Site Meetings. The report must be submitted for acceptance at the meeting and the final report to be circulated to the DPM and filed in the EMPr file.

The report must as a minimum cover the following:

- Weekly Environmental checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental monitoring;
- General environmental findings and actions; and
- Minutes of the monthly Environmental Site Meetings.

Final Environmental Audit Report (EAR): on final completion and as per the requirements of the EA a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

6.8 EMPr Amendments

Amendments of the EMPr may only be made in terms of regulations 36 and 37 of the EIA Regulations:

- Regulation 36(1): Where an amendment is required to the Impact Management Actions, such amendments may immediately be effected by the holder and reflected in the subsequent audit report;
- Regulation 36(2): Where an amendment is required to the Impact Management Outcomes, such amendments may only be amended on application by the holder of the EA;
- Regulation 37(2): The holder of the EA must invite comments on the proposed amendments to the impact management outcomes of the EMPr from potentially I&APs, including the competent authority, by using any of the methods provided for in the Act for a period of at least 30 days.

The Impact Management Actions in the tables below detail all those required during construction and operation. As construction is completed the actions applicable only to the construction in the tables can be reduced / deleted such that only the applicable operational actions remain. Any additional actions identified for operation can be added.

The Roles and Responsibilities may be amended as required, as may the evidence of compliance mechanism.

As per Reg 36(1) (above) these amendments may immediately be effected by the holder and reflected in subsequent audit reports.

7. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

The tables below list the aspects identified for the construction and operation of the Wembezi JunXion development, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identifies. Holders of EAs are responsible for the implementation of these outcomes and actions as a minimum requirement, in order to mitigate the impact of aspects identified for the operation of the facility.

7.1 Environmental Awareness Training: Construction Phase and Operational Phase

Impact Management Outcome: All onsite staff are aware of and understand their individual responsibilities in terms of this EMPr				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• All staff must receive environmental awareness training prior to commencement of working;	cEO / DEO	Commencement	cEO / ECO	Training Registers
• The Staff to be allowed sufficient time for training and attending relevant courses;	DSS / Contr	Ongoing		
• Refresher environmental training is available as and when required;	cEO / DEO	Ongoing		
• All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr;	cEO / DEO	Commencement		
• The Contractor / DSS must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: o Safety Notifications; and o No littering.	DSS / Contr	Commencement		
• Environmental awareness training must include as a minimum the following: o Description of significant environmental impacts, actual or potential, related to their work activities; o Mitigation measures to be implemented when carrying out specific activities; o Emergency preparedness and response procedures; o Procedures to be followed when working near or within sensitive areas; o Wastewater management procedures; o Water usage and conservation; o Solid waste management procedures; o Hazardous waste management procedures; o Spill management procedures; o Sanitation procedures; o Fire prevention and fire-fighting procedures; o Disease prevention	cEO / DEO	Ongoing		
• A record of all environmental awareness training courses undertaken as part of the EMPr must be available;	cEO / DEO	Ongoing		
• Educate workers on the dangers of open fires and / or unattended fires;	cEO / DEO cEO / DEO	Ongoing		
• A staff attendance register for all environmental awareness training must be available;		Ongoing		
• Courses must be available and presented in appropriate languages that all staff can understand.		Ongoing		

7.2 Site Establishment Development: Construction Phase

Impact Management Outcome: Impacts on the environment are minimised during site establishment and the development footprint is kept to a demarcated development area.				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• A plan must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;	Contr	Commencement	cEO	Checklists
• Location of camps must be within approved area to ensure that the site does not impact on any sensitive areas identified in the environmental assessment or site walk through;	Contr	Commencement		
• The camp must be fenced; and	Contr	Commencement		
• No construction staff will be accommodated on site – only security staff will be on-site overnight	Contr	Ongoing		

7.3 Fencing, Gate Installation and Security: Construction Phase

Impact Management Outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Fencing must be erected around the construction area including the camp, waste storage areas, hazardous chemical storage areas and all designated access restricted areas, where appropriate;	Contr	Commencement	cEO	Checklists
• Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff are away from site.	Contr	Ongoing		
• Site security will be required at all times;	Contr	Ongoing		
• Use existing gates provided to gain access to the site;				
• All gates must be fitted with locks and be kept locked at all times during the construction phase;	All Staff	Ongoing		
• All demarcation fencing and barriers must be maintained in good working order for the duration of the project;	Contr	Ongoing		
• On completion of the construction phase all temporary fences are to be removed.	Contr	Completion		
• Adequate security lighting to be provided on site.	Contr	Ongoing		
• All security lighting will be angled downwards to prevent disturbance to neighbours.	Contr	Ongoing		

Security: Operational Phase

Impact Management Outcome: Minimise impact to the environment and ensure safe and controlled access to the site.				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Site security will be required at all times; • Adequate security lighting to be provided on site. • All security lighting will be angled downwards to prevent disturbance to neighbours.	DPM / DSS DPM / DSS DPM / DSS	Ongoing Ongoing Ongoing	DEO	Checklists

7.4 Water Supply Management: Construction Phase and Operational Phase

Impact Management Outcome: Undertake responsible water usage				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Ensure water conservation is being practiced by:			cEO / DEO	Checklists
○ Minimising water use during cleaning of equipment;	Contr /DPM / DSS	Ongoing		
○ Undertaking regular audits of water systems;	cEO / DEO	Monthly		
○ Including a discussion on water usage and conservation during environmental awareness training; and	cEO / DEO	Commencement / Ongoing		(Training Register)
○ The use of grey water is encouraged.	Contr /DPM / DSS	Ongoing		

7.5 Surface and Groundwater Management: Construction Phase

Impact Management Outcome: Impacts to the environment caused by stormwater and wastewater are avoided				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Runoff from the cement / concrete mixing areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the DPM;	Contr	Ongoing	cEO	Checklists
• All spillage of oil must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility;	Contr	Ongoing	cEO	
• Natural storm water runoff not contaminated during construction and clean water can be discharged directly to the environment, subject to the DPM's approval and support by the ECO;	Contr	Ongoing	DPM / cEO	
• Water that has been contaminated with suspended solids, such as soils and silt, may be released into the environment only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the DPM's approval and support by the ECO;	Contr	Ongoing	DPM / cEO	

Impact Management Outcome: Impacts to the environment caused by stormwater and wastewater are avoided				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• The stormwater management plan must be approved by the local authority; refer Appendix 5.	DPM	Commencement	DPM	Approval record

Surface and Groundwater Management: Operational Phase

Impact Management Outcome: Impacts to the environment caused by stormwater and wastewater are avoided				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; refer Spillage Contingency Plan Appendix 6.	DPM / DSS	Ongoing	ECO	Checklists
• Storm water drains must be regularly inspected for any blockages which may be caused by litter scattering.	DSS	Ongoing		
• Discharge points must be inspected for blockages of any kind; these must be removed timeously to ensure the efficient operation of the stormwater management system.	DSS	Ongoing		
• Silt traps must be maintained as per the engineers requirements, the maintenance team must be trained on the correct procedure on how the trap should be maintained.	DSS	Ongoing		
• The Groundwater monitoring protocol for the PFS and the commercial complex must be implemented. Refer Appendix 3: Groundwater Monitoring Plan.	DPM	Ongoing		
• Contaminated stormwater must be directed to the oil trap and sump from where it will be collected for disposal; refer Appendix 6.	DPM / DSS	Ongoing		

7.6 Solid and Hazardous Waste Management: Construction Phase and Operational Phase

Impact Management Outcome: Waste is appropriately stored, handled and safely disposed of at a licenced waste management facility				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• All measures regarding waste management must be undertaken using an integrated waste management approach;	Contr / DPM	Ongoing	cEO / ECO	Checklists
• All litter must be collected daily; this includes litter on the verges along the P29 and the P179;	Contr / DSS	Ongoing		
• Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided;	Contr / DPM	Ongoing		
• A suitably positioned and clearly demarcated waste collection site must be identified and provided;	Contr / DPM	Commencement		
• The waste collection site must be maintained in a clean and orderly manner;	Contr / DSS	Ongoing		
• Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal;	Contr / DSS	Ongoing		
• Staff must be trained in waste segregation;	cEO / ECO	Commencement		(Training Register)
• Bins must be emptied regularly;	Contr / DPM	Ongoing		
• Waste and recycling must be removed from site weekly;	Contr / DPM	Ongoing		
• General waste produced onsite must be disposed of at licenced waste disposal sites / recycling company;	Contr / DPM	Ongoing		
• Hazardous waste must be disposed of at a licenced waste disposal site / recycling company;	Contr / DPM	Ongoing		
• Certificates of safe disposal for general, hazardous and recycled waste must be maintained.	Contr / DSS	Ongoing		(Safe Disposal Certificates)
• Waste disposal must be done according to the National Environmental Management: Waste Act 59 of 2008. Refer to Section 5.8 for solid and hazardous waste management.	Contr / DPM	Ongoing		
• Waste storage must be in accordance with the National Norms and Standards for Storage of waste (if applicable)	Contr / DPM	Ongoing		
• No burning of waste may take place on site.	Contr / DPM	Ongoing		

7.7 Hazardous Substances: Construction Phase and Operational Phase

Impact Management Outcome: Safe storage, handling, use and disposal of hazardous substances				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• The use, storage and handling of hazardous substances must be in accordance with applicable legislation; proof to be kept on site.	Contr / DPM	Ongoing	cEO / ECO	Checklists
• The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible;	Contr / DPM	Ongoing		
• All hazardous substances must be stored in suitable containers;	Contr / DPM	Ongoing		
• Containers must be clearly marked to indicate contents, quantities and safety requirements;	Contr / DPM	Ongoing		
• All storage areas must be bunded: the bunded area must be of sufficient capacity to contain a spill / leak from the stored containers;	Contr / DPM	Ongoing		

Impact Management Outcome: Safe storage, handling, use and disposal of hazardous substances				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Bunded areas to be suitably lined with a SABS approved liner;	Contr / DPM	Commencement		
• Storage areas must be clearly sign posted as such and access must be controlled;	Contr / DPM	Ongoing		
• An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis for all HCS used on site; Safety Data Sheets (SDS) for all HCS to be kept in the file;	cEO / ECO Contr / DPM	Ongoing Ongoing		(Records: HCS File)
• All employees working with HCS must be trained in the safe use of the substance, the potential impacts and follow appropriate safety measures, according to the SDS;	cEO / ECO	Commencement		(Training Register)
• Appropriate personal protective equipment (PPE) must be made available;	Contr / DPM	Ongoing		(PPE Register)
• Diesel and other liquid fuel, oil and hydraulic fluid must be stored in appropriate storage tanks or in bowsers;	Contr / DPM	Ongoing		
• The tanks / bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks (110% statutory requirement plus an allowance for rainfall);	Contr / DPM	Commencement		
• The floor of the bund must be sloped, draining to a collection sump;	Contr / DPM	Commencement		
• Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained;	Contr / DPM	Ongoing		
• All empty externally dirty drums must be stored on a drip tray or within a bunded area;	Contr / DSS	Ongoing		
• No unauthorised access into the hazardous substances storage areas must be permitted;	Contr / DSS	Ongoing		
• No smoking must be allowed within the vicinity of the hazardous storage areas;	Contr / DSS	Ongoing		
• Adequate fire-fighting equipment must be made available at all hazardous storage areas;	Contr / DPM	Ongoing		
• All flammable substances must be stored in an approved, locked storage area which must comply with the local Municipal bylaws.	Contr / DPM	Ongoing		
• Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used;	Contr / DPM	Ongoing		
• Appropriately sized and number of spill kits to be kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times, to be located in all areas where activities are undertaken;	Contr / DPM	Ongoing		
• The responsible operator must have the required training to make use of the spill kits in emergency situations;	cEO / ECO	Commencement		(Training Register)
• In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to Table 7.5 for procedures concerning surface and ground water management and Table 7.6 for solid and hazardous waste management.	Contr / DPM	Ongoing		
• For the PFS refer to the Spillage Contingency Plan; Appendix 6.				

7.8 Equipment Maintenance and Storage: Construction Phase and Operational Phase

Impact Management Outcome: Ensure plant operates effectively and efficiently				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Where possible and practical all maintenance of vehicles and equipment must take place in a designated area;	Contr / DSS	Ongoing	cEO / ECO	Checklists
• During servicing of vehicles or equipment, especially where emergency repairs are effected outside the designated area, a suitable drip tray must be used to prevent spills onto the soil;	Contr / DSS	Ongoing		
• Leaking equipment must be repaired immediately or be removed from site to facilitate repair;	Contr / DSS	Ongoing		
• Workshop areas must be monitored for oil and fuel spills;	Contr / DSS	Ongoing		
• Appropriately sized spill kits kept onsite relevant to the scale of the activity taking place must be available;	Contr / DPM	Ongoing		
• The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed;	Contr / DPM	Commencement		
• Water drainage from the workshop must be contained and managed in accordance Section 7.5: storm and waste water management.	Contr / DSS	Ongoing		

7.9 Emergency Procedures: Construction Phase and Operational Phase

Impact Management Outcome: Emergency procedure are in place to enable a rapid and effective response to all types of environmental emergencies				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project;	Contr / DPM	Commencement	cEO / ECO	ERAP
• The ERAP must deal with accidents, potential spillages and fires in line with relevant legislation;	Contr / DPM	Commencement		(Training Register)
• All staff must be made aware of emergency procedures as part of environmental awareness training;	cEO / ECO	Commencement		
• The relevant local authority must be made aware of a fire as soon as it starts;	Contr / DPM	Ongoing		
• In the event of an emergency necessary mitigation measures to contain the spill or leak must be implemented. Refer to Section 7.7 above: Hazardous Substances. Refer also to the Spillage Contingency Plan; Appendix 6.	Contr / DPM	Ongoing		
• All incidents to be recorded in the Environmental Incident Log. Refer section 6.4 above.	cEO / ECO	Ongoing		Environmental Incident Log

7.10 Dust Emissions: Construction Phase

Impact Management Outcome: To ensure a safe working environment for all staff and surrounding community members				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the cEO and in accordance with the OH&SA;	Contr	Ongoing	cEO	Checklists
• Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible;	Contr	Ongoing		
• Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;	Contr	Ongoing		
• During high wind conditions, the cEO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level;	cEO	Ongoing		
• Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;	Contr	Ongoing		
• Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;	Contr	Ongoing		
• Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas;	Contr	Ongoing		
• For areas of excavation or exposed ground, dust suppression measures (such as watering) must be	Contr	Ongoing		

used to minimise the spread of dust.				

7.11 Health, Safety and Prevention of Disease: Construction and Operational Phase

Impact Management Outcome: All necessary precautions linked to the health and safety of workers and the prevention of disease are taken.				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Ensure strict compliance with the Occupational Health and Safety Act 1993 (Act 85 of 1993), to ensure the health and safety of all staff.	Contr / DPM	Ongoing	cEO / ECO	Checklists
• Site safety checks should be undertaken in accordance with the Occupational Health and Safety Act (Act 85 of 1993).	cEO / ECO	Ongoing		
• Undertake environmentally-friendly pest control;	Contr / DPM	Ongoing		
• Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS;	cEO / ECO	Commencement		
• Information posters on AIDS must be displayed in staff areas (e.g. ablutions, change rooms);	cEO / ECO	Ongoing		
• Information and education relating to sexually transmitted diseases to be made available to both all staff and the local community, where applicable;	cEO / ECO	Ongoing		
• Free condoms must be made available to all staff on site at central points;	Contr / DPM	Ongoing		
• Medical support must be made available;	Contr / DPM	Ongoing		
• Provide access to Voluntary HIV Testing and Counselling Services;	Contr / DPM	Ongoing		
• Workers to be issued with the required / appropriate PPE;	Contr / DPM	Ongoing		
• First aid kits must be made available on site;	Contr / DPM	Ongoing		
• No alcohol / drugs are allowed on site and no workers under the influence will be permitted on site;	Contr / DPM	Ongoing		
• No firearms or traditional weapons allowed on site;	Contr / DPM	Ongoing		
• No fires will be permitted on site.				

7.12 Sanitation: Construction Phase

Impact Management Outcome: **Clean and well maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment and all necessary precautions linked to the spread of disease are taken**				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Mobile chemical toilets must be available on site for all staff; • The mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; • Where mobile chemical toilets are required, the following must be ensured: o Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; o No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; o Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; o Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; o Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; • A copy of the waste disposal certificates must be maintained.	Contr Contr Contr Contr	Commencement Ongoing Ongoing Ongoing	cEO	Checklists

Sanitation: Operational Phase

Impact Management Outcome: **Clean and well maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment and all necessary precautions linked to the spread of disease are taken**				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Ablution facilities to be provided for all staff; • The ablution facilities must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; • Ablution facilities to be kept clean and deep cleaned professionally regularly.	DPM DSS DSS	Commencement Ongoing Ongoing	ECO	Checklists

7.13 Fire prevention / fighting: Construction Phase and Operational Phase

Impact Management Outcome: Prevention of fires				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• No open fires allowed on site; • Designate smoking areas where a fire hazard could be regarded as insignificant; • Adequate and appropriate firefighting equipment must be available on site; • Equipment must be constantly maintained/checked and easily accessible during emergency situations. • Appropriate fire-fighting training to be undertaken and responsibilities on site defined; • The local Fire Protection Agency (FPA) must be informed of construction activities; • Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site. • Build the underground fuel storage tanks according to the applicable legislation regarding fire precautions and fire control, including the local fire department's regulations and SANS codes. • No burning of waste may take place on site.	Contr / DPM Contr / DSS Contr / DPM Contr / DPM cEO / ECO Contr / DPM cEO / ECO DPM Contr / DSS	Ongoing Ongoing Commencement Ongoing Commencement Ongoing Ongoing Commencement Ongoing	cEO / ECO	Checklists (Training Register)

7.14 Noise and Lighting: Construction Phase and Operational Phase

Impact Management Outcome: Unnecessary noise and lighting is prevented by ensuring that noise and lighting from construction and operation activities is mitigated.				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance

• Develop a Code of Conduct in terms of hours of operation, behaviour of staff and use of security lighting;
• Institute noise control measures for all applicable activities;
• Operating hours as determined by the EA and in accordance with the national laws and local by-laws, must be adhered to;
• Where not defined, it must be ensured that activities must still meet the impact management outcome related to noise and lighting management;
• Noise:
  ○ The Contractor and Operator must keep noise level within acceptable limits, and restrict the use of sound amplification equipment for communication and emergency only;
  ○ All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained;
  ○ Any complaints received by the Contractor or Operator regarding noise must be recorded and communicated;
	Contr / DPM
	
	Contr / DPM
	Contr / DPM
	
	Contr / DPM
	
	Contr / DPM
		Commencement
		
		Ongoing
		Commencement
		
		Ongoing
		
		Ongoing
			cEO / ECO	(Code of Conduct)
				
				Checklists

Impact Management Outcome: Unnecessary noise and lighting is prevented by ensuring that noise and lighting from construction and operation activities is mitigated.				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
○ Noise at levels which are disruptive to neighbours will not be permitted on site. • Lighting: ○ The Contractor and Operator must keep lighting levels within acceptable limits, and restrict the use of security lighting to the development area; ○ All security lighting will be angled downwards to prevent disturbance to neighbours; ○ Any complaints received by the Contractor or Operator regarding lighting must be recorded and communicated; ○ Lighting at levels which are disruptive to neighbours will not be permitted on site	Contr / DPM	Ongoing		

7.15 Traffic Management: Construction Phase

Impact Management Outcome: Impacts caused by traffic are minimised				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• The speed of construction vehicles will be controlled and monitored along access roads to the site; • Construction traffic will be minimized during peak hour traffic to reduce impacts on the neighbouring businesses;	Contr	Ongoing	cEO	Checklist
• All site vehicles must be inspected and be found to be at an acceptable standard before accessing site;	Contr	Ongoing	cEO	Checklist
• During construction the road network improvements as outlined in the TIA must be implemented, including: o The intersection of P29 and P179 to be converted to a signalised intersection; o An additional lane is required in each direction on the P179 between the P29 and the proposed development access. The length of these two lanes 60m; o Sidewalks are to be provided along the P179 frontage of the proposed development to cater for the pedestrians generated by the development; o Sidewalks are also recommended along both edges of the access road into the development; o In accordance with the requirements of the KwaZulu-Natal Department of Transport, all signalised intersections are required to have street lighting along all approaches; o It is also recommended that street lighting is provided at the development entrance intersection to improve visibility at the intersection at night; o It is recommended that a public transport facility is provided within the development to cater for any public transport activity and the public transport passengers generated by the proposed development; o A 15m building line is to be applied along both the P29 and P179 frontages of the development. The 15m building line may be relaxed by the KZN DoT on application to 7.5 m for internal roads and parking; o No fuel tanks permitted within the building line; o The recommended intersection layouts and control.	Contr / DPM	Commencement	DPM	(As-built Plans)

Traffic Management: Operational Phase

Impact Management Outcome: Impacts caused by traffic are minimised				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• During operation the management of traffic, the maintenance of the external roads and infrastructure is the responsibility of the Local Authority.	Local Authority	Ongoing	DPM	N/A
• Traffic Management on site will include: o Speed control o Parking control	DPM	Ongoing	DPM	Checklist

7.16 Topsoil Management, Stockpiling and Stockpile Areas: Construction Phase

Impact Management Outcome: Impacts caused by excavations, stockpiling and infilling are minimised				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• The upper 200 mm of topsoil with noticeable organic content should be removed and stockpiled for later top-soiling of fill banks or general landscaping purposes.	Contr	Commencement	cEO	Checklists
• Areas will be cleared immediately prior to construction to prevent erosion and soil loss.	Contr	Ongoing		
• Exposed soils, and cut and filled surfaces are to be adequately safeguarded as per recommendations of the geotechnical report;	Contr	Ongoing		
• Specialist geotechnical advice must be followed to ensure all new fill embankments are constructed to rule out the potential for large-scale instability and the associated negative environmental implications (as applicable)	Contr	Ongoing		
• It is recommended that all earthworks be carried out in accordance with SANS 1200 (DM – Earthworks)	Contr	Ongoing		
• All vegetation should be cleared from the areas over which fills are to be built.	Contr	Commencement		

7.17 Petrol Filling Station and Other Hazard Installations: Construction Phase and Operational Phase

Impact Management Outcome: Impacts to the environment caused by underground fuel storage tanks and fuel lines are avoided				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Underground fuel tanks and the fuel reticulation and pipework (for the PFS) must be designed and constructed in strict accordance with SANS 10089-3:2010: The installation, modification and decommissioning of underground storage tanks, pumps, dispensers and pipework at service stations and consumer installations.	Contr / DPM	Commencement	DPM /ECO	(Approved plans)
• Adhere to all applicable specifications and legislation during the construction of the fuel storage tanks.	Contr / DPM	Commencement	cEO	(As-built diagrams)
• All storage tanks must be equipped with monitoring wells as per SANS 10089. Monitoring wells must be properly sealed to minimise possibility of sample contamination or creation of path way to underground water.	Contr / DPM	Commencement	cEO / ECO	Checklists
• The Groundwater monitoring protocol for the PFS must be implemented. Refer Appendix 3: Groundwater Monitoring Plan.	DPM	Ongoing	ECO	
• Functionality of the Automatic Tank Gauging (ATG) (or similar) system which is an electronic system installed on-site to monitor tanks and pressurized piping must be ensured at all times so as to ensure that no leakages of product reach the environment.	DPM	Ongoing		
• Any contaminated residue collected during refuelling activities must be disposed of in a correct manner that will not negatively harm the environment.	DPM	Ongoing		
• Employees must be aware of the location of the emergency shut off valve for fuel lines;	DPM	Ongoing		
• Contaminated stormwater must be directed to an oil trap and sump from where it will be collected for disposal.	DPM	Ongoing		
• The refuelling area must have an oil/water separator and it should be regularly serviced, records of such service must be available on file for audit purposes	DPM	Ongoing		
• The pump, refuelling and dispensing areas must be positioned within areas of hardstanding that will drain to a common point, which will then feed into an onsite oil water separator;	DPM	Commencement		
• Automatic cut-off devices shall be installed to prevent overfills and spillages during tanker delivery and dispensing.	DPM	Commencement		
• The dispenser pump must be located on a hardened surface where spillages can be readily contained or in the case of minor spillage, evaporate. Such surface will prevent downward migration of any spilled product.	DPM	Commencement		
• Oil/grease traps must be appropriately maintained and polluted water/sludges must be regularly removed and safely disposed. Safe disposal certificates will be retained on site.	DPM	Ongoing		

7.18 Socio-economic: Construction Phase and Operational Phase

Impact Management Outcome: Socio-economic development is enhanced.				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• Ensure that no refuse or builders' rubble generated on the premises is placed, dumped or deposited on adjacent / surrounding properties including road verges, roads and open spaces during or after the construction period of the new development.	Contr / DPM	Ongoing	cEO / ECO	Checklists
• Develop and implement communication strategies to facilitate public participation;	Contr / DPM	Commencement	cEO / ECO	
• Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process;	Contr / DPM	Commencement	cEO/ ECO	
• Sustain continuous communication and liaison with neighbouring owners and residents;	Contr / DPM	Ongoing	cEO/ ECO	
• Create work and training opportunities for local stakeholders; and	Contr / DPM	Ongoing	cEO/ ECO	
• Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to neighbours.	Contr / DPM	Ongoing	cEO/ ECO	

7.19 Heritage Resources and Biodiversity: Construction Phase and Operational Phase

Impact Management Outcome: Heritage / archaeological or historical remains, e.g. graves and fossils and biodiversity are preserved.				
Impact Management Actions	**Implementation**		**Monitoring**	
	Responsible Person	Timeframe for implementation	Responsible person	Evidence of compliance
• If any archaeological material, palaeontological material (concentrations of bones or shells), or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist or palaeontologist. Such heritage is the property of the state and may require excavation and curation in an approved institution. Refer Appendix 4: Chance Find Protocol below.	Contr / DPM	Ongoing	cCO / ECO	Checklists
• Habitat degradation as well as habitat fragmentation must be minimized through the avoidance of areas not planned for the development.	Contr / DPM	Ongoing		
• Areas will only be cleared of vegetation as required for construction.	Contr / DPM	Ongoing		
• Landscaping will be undertaken on any unused areas of the site; indigenous plants will be used wherever possible.	DPM	Ongoing		
• Landscaped areas will be maintained in such a manner as to ensure that there are no alien plants or areas of erosion.	DPM	Ongoing		
• Alien Plants will be removed on an ongoing basis.	Contr / DPM	Ongoing		

8. CONCLUSION

This EMPr has not detailed the requirements of the decommissioning phase, it is therefore required that prior to undertaking decommissioning activities the applicant appoints an Environmental Assessment Practitioner (EAP) to draw up a site closure EMPr. That EMPr will deal with decommissioning and rehabilitation of each component of the site's activities and its primary concerns will be to create environmentally stable conditions which are in compliance with the relevant legislation and which will act to minimise environmental impacts caused by the activity.

The EMPr must be reviewed periodically throughout the life of the facility to cater for changes that may take place during operations e.g. addition of storage tanks, changes in technology, etc.

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

EMPr prepared by:
Ms V King (EAP)
Metamorphosis Environmental Consultants

APPENDIX 1 CV of EAP: VICKI KING

Professional Qualifications
Masters Degree (LLM) in Environmental Law, University of Natal, Durban 2003.
BSc (Joint Honours) Biological Sciences and Geography, University of Birmingham, England in1988.

Short Courses
Integrated Environmental Management (IEM) Theory and Practice – University of Cape Town 1992.
Cultivated Pasture Management, Cedara Agricultural College 1996.
Conflict Management, CDR Associates, 1997
Environmental Lead Auditor Course, Wynleigh International / University of Potchefstroom 2000.
Conversational Zulu 2003.
Corporate Governance 2003.
Environmental Law Update, Green Gain Consulting 2009
Hazardous Waste Management, IWM, 2012
Train the Trainer, KZN Training, 2014
UN Globally Harmonised System of Chemical Classification, RiskChem, 2014
Environmental Law Update, Shepstone and Wylie, 2014.
Sharpening the Tool; New Techniques in Environmental Impact Assessment, SE Solutions 2014.
Carbon Footprinting – GCX, February 2017.

Year of Birth
1967

Nationality
British (Permanent Resident RSA)

***Languages**
English, French (Good), German (basic), Zulu (basic).

Professional Affiliations
Registered Professional Natural Scientist (1994)
International Association for Impact Assessment (1999)
MSAIE&ES (2004)
Institute for Waste Management South Africa (2004)
EAPSA certified environmental practitioner (2005/2019)
National Association for Clean Air (2005)
Environmental Law Association of SA (2012)

Career Profile
Vicki has been working as an independent environmental consultant for over 30 years, during this time, she has undertaken or project managed over 500 environmental projects. She ran the Durban office of WSP Walmsley for 13 years and reviewed every technical document produced in the office during this time. She set up MEC in 2006 and now undertakes predominantly review, management systems, permit applications, training, auditing and advisory work, calling on her many years experience in the field.

She has successfully compiled and carried out training courses in EIA review for the eThekweni Municipality Development and Planning Department, sustainability training for Capcan Africa and runs her own EIA training courses in Durban. She has undertaken 'Train the Trainer' coaching to ensure that her training techniques are robust and up to date.

She has completed her Masters in Environmental Law at the University of Natal, the research for which has provided her with a great insight into the legislative situation within the environmental profession. The title of her dissertation was '*Sustainable Development – Legal Facilitation or Failure'*.

This, together with the practical experience she has gained in 30 years of practice, gives her capability to add value to environmental procedure documentation, through involvement in the drafting, and review process.

Areas of Expertise
Environmental Law, all aspects of Integrated Environmental Management including management systems (ISO 14000), Auditing, Scoping Studies, EIA, Water Use Licensing, EMPs, EMPRs (mining industry) and monitoring. She successfully

completed Environmental Lead Auditor course through Potchestroom University in 2000. Her particular interest lies in waste management, review, corporate governance and sustainable development within the industrial sector.

Countries Worked
South Africa, Zimbabwe, Zambia, Mauritius, Seychelles, United Kingdom and Namibia.

Papers
IEM and the Proponent, Young Water, Environmental & Geotechnical Engineers Festival 1996
Environmental Planning and Management of Water Supply Projects, WISA Conference, PMB 1996
Sustainable Development – Legal Facilitation or Failure, Masters Dissertation, 2003.
Environmental Law – The Triple Bottom Line Approach, Legal Congress 2004.

Publications
EIA in the Seychelles - Chapter in SAIES Book on Environmental Assessment in Southern Africa, 2003.

EMPLOYMENT HISTORY

Metamorphosis
February 2006 to present – Member

Wilson and Pass

WSP Environmental, Durban, RSA
April 2001 to February 2006 – Director

Walmsley Environmental Consultants, Durban
July 1995 to April 2001 - Director/Senior Environmental Scientist

Walmsley Environmental Consultants, Durban
August 1993 to July 1995 - Environmental Scientist

Walmsley Environmental Consultants, Johannesburg
January 1991 to August 1993 - Environmental Scientist

Lewis's Retail Ltd, England
1988 to 1990 - Departmental manager/Personnel manager

KEY PROJECT EXPERIENCE

PROJECT	Client	Year	Role
Industry Waste Management Plans			
Everest Flexibles	Everest	2017	Project leader
iThunga Pre-Press	Everest	2019	Project leader
Landfill Auditing			
Landfill permit audits for the Bulbul Drive H:h landfill site	Wasteman	2008 – present.	Lead Auditor
Review of Mariannhill landfill site permit audits	DSW	2009 - present	Review
Internal Auditing for Kwadukuza Landfill Site	DCLM	2010 – 2019.	Lead Auditor
Review of Landfill Audits for Geomeasure Group	Geomeasure Group	2010 to 2018	Review
Landfill Permit Audit for the Roundhill Landfill site	Buffalo City Municipality	2016 and 2017	Lead Auditor
Waste Disposal			
Site Selection Study for a hazardous waste Disposal site in Kwazulu-Natal.	Waste Services	1993	EAP
Independent Environmental Assessment for New England Road Landfill Site, Pietermaritzburg	Pietermaritzburg Municipality	1996	Review
Independent Chair for the Mariannhill landfill Monitoring Committee.	eThekwini Municipality	2009 - present	Chair
Ongoing consultation at the Kwadukuza Landfill site in KZN.	DCLM	2010 -	EAP

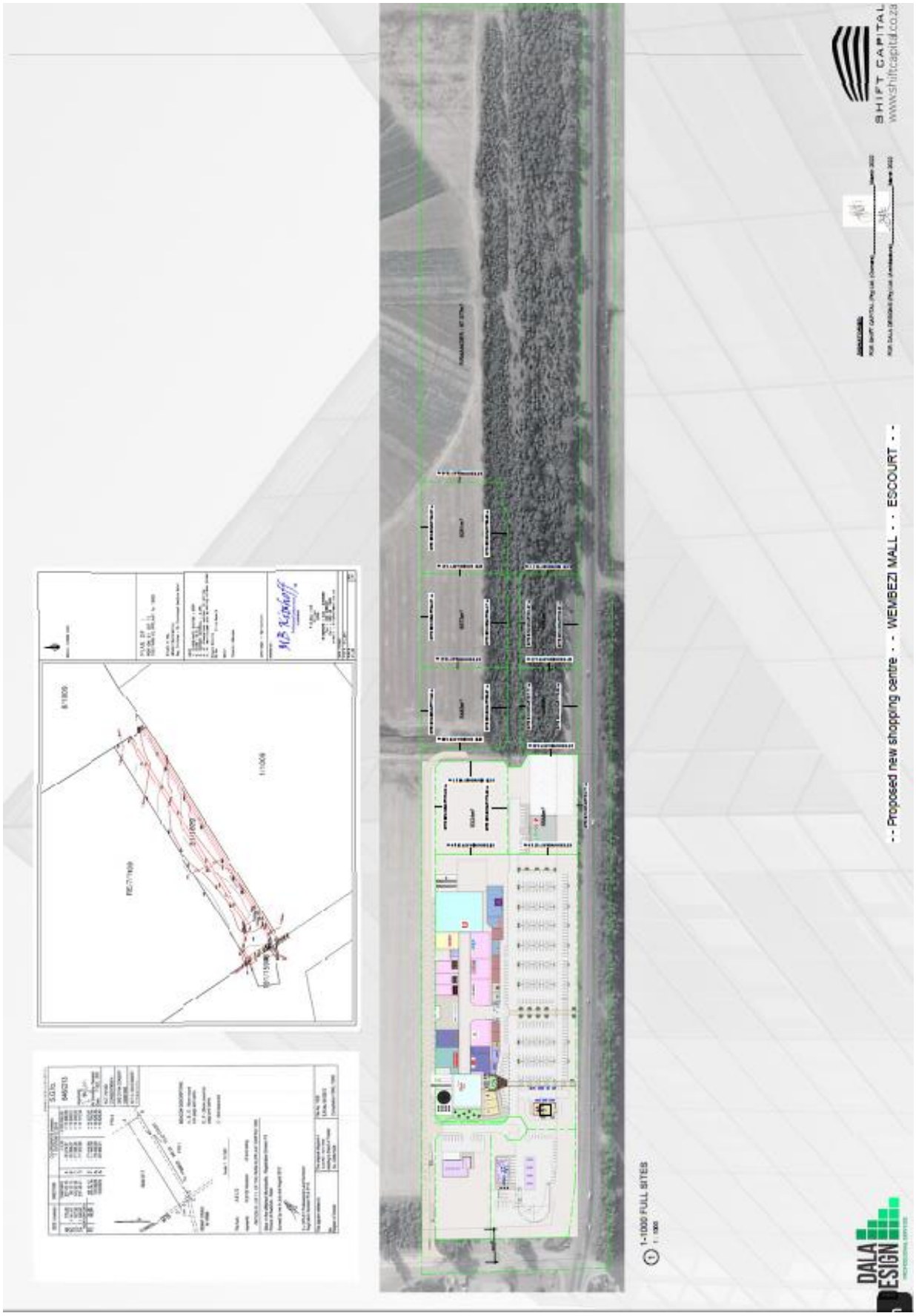
		present	
Project management of the Leachate treatment solution project for DCLM	DCLM	2012	Project leader and EAP
Application for the exclusion of Slag from the definition of waste	Assmang	2016, 2018	Project leader
Application for the exclusion of Slag from the definition of waste	African Rainbow Minerals	2020	Project leader
Review of the Chloorkop Waste Licence Application	Lords View	2019	Review
Review of the Somkhele Waste Licence Application	Tendele	2020	Review
Water Use Licence Applications			
Integrated Water Use Licence for the Kwadukuza Landfill and leachate treatment plant	DCLM	2016	Project leader and EAP
Integrated Water Use Licence Application for the Lovu Landfill and leachate treatment plant	DSW	2015-2016	Project leader and EAP
Water Use Licence Application for the Proposed Birdhaven Estate in Salt Rock	DG Investments	2015-2016	Project leader and EAP
Integrated Water Use Licence for the Shongweni Landfill	DSW	Current	Project leader and EAP
Environmental Control Officer			
Environmental monitoring for the NCS Warehouse construction.	NCS Resins	2000	ECO
Environmental monitoring for the construction of the replacement pipe to the SAPREF SBM.	SAPREF	2001	ECO
Environmental monitoring for the Umgeni South Coast Pipeline construction.	Umgeni Water	2011	ECO
Environmental monitoring for the Greenmeadow Lane construction.	M Piggott	2009 - 2016	ECO
Environmental monitoring for the construction of Molasses bladders at Maidstone and Felixton Sugar Mills.	Voermol	2016 and 2018	ECO
Environmental monitoring for Cell 2 and LTP construction at Kwadukuza Landfill.	DCLM	2015	ECO
Alien Plant monitoring for Kwadukuza Landfill site.	DCLM	2013 - 2019	ECO
Environmental Auditing			
Shadow audit for Diverseylever with URS Dames and Moore in Durban.	URS	2003	Auditor
Environmental legal audit for the three NPC sites around KZN.	NCS	2007	Lead Auditor
Environmental Legal Audit for Somkhele Coal Mine.	Tendele Coal	2011	Lead Auditor
Environmental Legal Audit for Zululand Anthracite Colliery.	GCS	2011	Lead Auditor
Legal Audit for the Monoweld Galvanising plant in Johannesburg	Monoweld	2016	Lead Auditor
Environmental health and Safety Audit for the Equal Chance Trading and Discovery Drilling operation in Rustenburg	Equal Chance	2017	Lead Auditor
Environmental Audit of the National Norms and Standards for the Storage of Waste for the DCLM site in Richards Bay	DCLM	2017 and 2019	Lead Auditor
Environmental Audits for 5 AccessWorld Sites throughout South Africa	AccessWorld	2017/18	Lead Auditor
Environmental health and Safety Audit for the ACE Chemical Factory in Johannesburg	Associated Chemical Enterprises	2018	Lead auditor
Audits of 12 BP Fuel Filling stations throughout the Western Cape	BP/GMG	2018	Lead Auditor
Audit of Bulk Fuel Storage facilities at OR Tambo, George, Wonderboom and East London Airports	BP/GMG	2018	Lead Auditor
Audit of the Arsenic disposal operation at Dundee Precious Metals at Tsumeb, Namibia.	DPMT	2019/2020	Lead auditor
Environmental Training			
Environmental Training for Contractors on the Booth Road Development, Durban.	eThekwini	1999	Lead Facilitator
EIA Review training for eThekwini Municipal officials	eThekwini	2000	Lead Facilitator
Environmental Law training for Metro Parks Department	eThekwini	2005	Lead Facilitator
Sustainability Training for Capcan Africa (various clients).	Capcan	2007	Lead Facilitator
Real World EIA training for Consultants and Industry.	Various	2008 - present	Lead Facilitator
Environmental Training for Unitrans Construction	Unitrans	2012	Lead Facilitator

Supervisors/Managers.			
Environmental Law training for AccessWorld Supervisor and Managers (5 sites)	AccessWorld	2020	Facilitator
Environmental Management Plans			
Closure Plans for Solmar and Burnside Collieries	Grinaker	1999	EAP
Environmental Management Plan for the Zone 3l Reservoir, Kloof.	eThekwini	2000	Project leader and EAP
Environmental Management Plan for the Courtyards Shopping Centre in KwaZulu Natal.	Mark 2 Projects	2001	Project leader and EAP
Environmental Management Plan for the Kloof Sewer Pipeline	eThekwini	2002	Project leader and EAP
Environmental Management Programme	Hulett Aluminium	2003	Project Leader
Review of the SAPREF ISO 14000 system.	SAPREF	2004	EAP
Environmental management plans for the Nutri-Flo Spoornet sites.	NutriFlo	2013-2016	Project leader and EAP
Environmental Impact Assessment			
PEIA for Sengwa Colliery in Zimbabwe.	Rio Tinto Zimbabwe	1991	EAP
EIA for Pegasus Coal mine	Trans-Natal Corp	1991	EAP
EIA for Marble Hall MDL project	Samancor Ltd	1991	EAP
EIA and management plan for housing development in Munster, Natal.	Permprop	1992	Project leader and EAP
EIA for a coal loading siding in Vryheid	Trans Natal Corp	1993	Project leader and EAP
EIA and Management plan for the Northern Feeder Pipeline,	Umgeni Water	1994	Project leader and EAP
Full EIA for the Gokwe North Coal Mine in Zimbabwe for	Rio Tinto Zimbabwe	1993 - 1997	Project leader and EAP
Environmental Study for the upgrading of the Durban Heights Reservoir Overflow System	Umgeni Water	1995	Project leader and EAP
Environmental Scoping Study for an SRU and SCOT at the SAPREF Refinery on the KZN South Coast.	SAPREF	1996	Project leader and EAP
Environmental Application for the Mhlathuze Waste Water Pipeline in Richards Bay.	Mhlatuze Water	1999	Project leader and EAP
Full EIA for the Murowa Diamond mine in Zimbabwe	Rio Tinto Zimbabwe	1999 to 2002	Project leader and EAP
Environmental Scoping study for the Durban Fibres Plant in Prospecton.	Hosaf	2001	Project leader and EAP
Scoping Study for the proposed pilot bitumen plant at Engen Refinery	Engen	2002	Project leader and EAP
Scoping Study for the SAPREF Clean Fuels Project	SAPREF	2003	Project leader and EAP
Extended Scoping Study for the LignoTech Lignosulphonate Plant	Sappi Saiccor	2003	Project leader and EAP
EIA for the Durban Solid Waste CDM project (Landfill gas to Energy)	eThekwini	2004	Project leader and EAP
Scoping study for the Engen Clean Fuels Project	ENGEN	2004	Project leader
Scoping report for the WasteX Autoclave project in Tongaat	WasteX	2004	Project leader and EAP
Environmental impact assessment for the Sappi Saiccor Expansion project	Sappi Saiccor	2005	Project leader and EAP
Environmental Impact Assessment for the Proposed Shongweni Landfill.	DSW	2005	Project leader
Basic Assessment for a proposed styrene tank at NCS Resins, Isipingo.	NCS Resins	2005	Project leader and EAP
Environmental Impact Assessment for the Bulbul Drive Gas recovery project.	Wasteman	2006	Project leader and EAP
Scoping report for the Fordoun Leisure Resort expansion.	Fordoun	2007	Project leader and EAP
Environmental Impact Assessment for the Inkwazi Housing Development in Kwadukuza Municipality	Chapman Enterprises	2008	Project leader and EAP
Assistance to the KZN Provincial Department of Agriculture and	DAEA	2009	EAP

Environmental Affairs with the closure of files and issuing of RODs for 34 applications.			
Basic Assessment for a proposed dam on the Mhlali River.	A Reynolds	2010	Project leader and EAP
S24G application and EMPr for the eThembeni Cemetery in Pmb.	Mpinvestfor	2011	Project leader and EAP
Environmental Impact Assessment for the Kwadukuza Landfill upgrade project.	DCLM	2012	Project leader and EAP
N3 Upgrade Project	SANRAL	Current	Project leader and EAP
Basic Assessment for the Kingsburgh x 9 Housing Development	Dan Spares	Current	Project leader and EAP
S24G application for the Construction of 3 dams on AC Reynolds Farm	AC Reynolds	2018	Project leader and EAP
S24G application for the formalization of permitting at the Lovu Landfill site	eThekwini Municipality	Current	Project leader and EAP
Environmental Management Programme Reports for Mining			
EMPR for Greenside and New Clydesdale Collieries	Gold Fields of SA	1992	EAP
EMPR for a basalt quarry in Mtubatuba	North Coast Crushers.	1994	EAP
EMPR for a brickworks on the Mzimkulu River	IH Brick & Block.	1996	Project leader and EAP
EMPR for Brockwell Colliery in Vryheid	Trans Natal Colliery	1997	Project leader and EAP
EMPR for Glen Quarry, Dundee	Sunshine Quarries	1998	Project leader and EAP
Environmental Management Programme for Midmar Crushers Dolerite Quarry, Howick	Midmar Crushers	1998	Project leader and EAP
EMPR for Natal Ammonium Colliery Closure in Vryheid	Kangra	1999	Project leader and EAP
EMPr and WUL Compliance assessment for Tendele Mining	Tendele	2019	Lead Auditor
Strategic Environmental Assessments			
Strategic Environmental Assessment for the location of marinas, ski lanes and bathing areas	Government of Mauritius	2003	EAP
SEA for development of a Tourism Strategy for Kwadukuza Local Municipality.	Hayley Sharpe	2008	EAP
Strategic Environmental Assessment to identify Industrial land in Ilembe District.	Urban Econ	2009	EAP
Due Diligence Studies			
Due diligence study for privatization of the oil industry in Zambia.	Zambian Government	2000	EAP
Due Diligence for 'Project Pipe' in Howick KZN.	ERM	2003	EAP
Due diligence for acquisition of various industrial sites in KZN	ERM	2004	EAP
General Environmental Projects			
Production of a brochure on environmental control for the Outer West Local Council.	eThekwini Municipality	1993	EAP
Seychelles Chapter in World Summit Sustainable Development book in order to provide a constructive analysis of the application of Environmental Assessment.	South African Assessment of Impact Assessment	2003	Research and compilation
Strategic planning for the identification of Major Hazardous Installations in eThekwini.	eThekwini Municipality	2004	EAP
Duty of Care study for Sappi Saiccor industrial Modernisation Project	Sappi Saiccor	2005	EAP
Closure Planning			
Closure Plan for Assmang Manganese, Cato Ridge.	Assmang	2005	Project leader and EAP
Pasture Management			
Preparation of a pasture management plan on various equestrian properties in Assagay.	Various	2006 - present	Project leader and EAP
Ongoing management of several equestrian properties in Assagay.	Various	Ongoing	Project leader and EAP

Environmental Review			
Review of the EIA for the proposed Xolobeni Mining Project.	GCS	2007	Review
Review of Various mining applications for GCS Consultants	GCS	2010- 2011	Review
Review of Several projects for Acer Africa.	Acer	2011-present	Review
Review of the Keystone Logistics Park Environmental Impact Assessment	Balanced Environment	2015	Review and assistant to EAP
Review of all Environmental Projects for Geomeasure Group	GMG	2012-present	Review
Review of the Chitima Mining EIA in Mozambique	GCS	2018	Review
Review of Somkhele Mining application EMPr	Tendele	2019	Review
Corporate Governance			
Verification audit for McAlpine's Annual Sustainability Report at 4 sites in UK (industrial, retail, infrastructure and mining).	WSP	2005	Lead Auditor
Facilitation at the Real World Learning event for Exel in Hoedspruit.	Exel	2005	Facilitator
Review of Eskom's 2006 Annual Report	Eskom	2006	Review
Legal Register compilation			
Monoweld Galvanisers	Monoweld	2016	Author
Equal Chance	Equal Chance	2017	Author
Or Tambo International Airport Bulk Fuel Storage	BP/GMG	2018	Author
Wonderboom Airport Bulk Fuel Storage	BP/GMG	2018	Author
George Airport Bulk Fuel Storage	BP/GMG	2018	Author
East London Bulk Fuel Storage	BP/GMG	2018	Author
Strategic Assistance			
Environmental Advisory work	DCLM	2010 to present	Advisor
Strategic assistance with regard to Environmental Management Systems	Voermol Feeds	2016 to present	Advisor
Carbon Footprint			
Development of Carbon Footprint Report	Voermol Feeds	2017	Author
Update of Carbon Footprint Report	Voermol Feeds	2018	Author

APPENDIX 2 SITE LAYOUT PLAN (PROPOSED)



APPENDIX 3 GROUNDWATER MONITORING PLAN

Gondwana Geo Solutions: Report on a Preliminary Hydrogeological Assessment for the Proposed Wembezi PLS, Portion 51 (of 7) of the Farm Klipplaat Drift No. 1009, Estcourt, KwaZulu-Natal: September 2021

GROUNDWATER MONITORING PLAN

A ground water plan for sampling the groundwater in the general Wembezi area to assess the general quality in terms of potable or drinking or potable water in terms of SAN241-2015 is provided.

The service station site forming part of the planned development will, however, require a more specific groundwater monitoring plan relating to hydrocarbon contamination.

The groundwater quality should be monitored by sampling the following monitoring points:

- Existing three groundwater boreholes located between 50 and 500m to the west, northwest and northeast of the site, respectively, and
- Specific shallow groundwater monitoring piezometer standpipes which should be installed to cover relatively high-risk areas of anticipated contamination. The locations of these will be decided upon by the groundwater specialist appointed for this work

The groundwater monitoring programme should incorporate the following:

- Baseline monitoring - A once-off event to establish the background or ambient groundwater

quality prior to the development of the site

- Long term monitoring - Periodic sampling events over the life of the development to establish the presence of contamination and the rate of increase of any contamination trends beneath the ground

Details of the groundwater monitoring plan are provided in Table 1 below:

Table 1 Recommended Monitoring of Groundwater Boreholes

Sampling	Frequency	List Of Determinants
General Shopping Centre Area		
Baseline Sampling:	All groundwater boreholes in the area and purpose installed groundwater monitoring piezometers or standpipes to be sampled and tested to establish background groundwater quality	Potable Water Quality - SANS 241: 2015 (for determinants see below)
Long-term monitoring	Six monthly – may be reduced to annual monitoring if stable groundwater chemistry and quality are proven	
Service Station Site		
Baseline Sampling:	All groundwater boreholes in the area and purpose installed groundwater monitoring piezometers or standpipes to be sampled and tested to establish background groundwater quality	Hydrocarbons – As required by Fuel Company (owner / manager of facility or supplier of fuel and oil products). Typical determinants could include: Paraffins, naphthalenes, alkylbenzenes; alkanes; alkenes isoalkanes; cycloalkanes; and cycloalkenes
Long-term monitoring	Six monthly (or as required by the Fuel Company's protocols)	

SOUTH AFRICAN NATIONAL STANDARD: Drinking water (SANS 241:2015)

Parameter	Unit	Risk	Standard limit
pH at 25^{o}C	pH Unit	Operational	> 5.0 - < 9.7
Conductivity at 25^{o}C	mS/m	Aesthetic	170
Turbidity	NTU	Operational	1
		Aesthetic	5
Free Chlorine	mg/L	Chronic Health	5
Colour	mg/L	Aesthetic	15
Calcium as Ca	mg/L	Aesthetic/Operational	150
Magnesium as Mg	mg/L	Aesthetic/Health	70
Sodium as Na	mg/L	Aesthetic	200
Potassium as K	mg/L	Operational / Health	50
Zinc as Zn	mg/L	Aesthetic	5
Chloride as Cl	mg/L	Aesthetic	300
Fluoride as F	mg/L	Chronic Health	1.5
Sulphate as SO_4^{2-}	mg/L	Acute Health Chemical	500
		Aesthetic	250
Total Dissolved Solids	mg/L	Aesthetic	1 200
Nitrate and Nitrite Nitrogen as N	mg/L	Acute Health Chemical	12
Ammonia Nitrogen as N	mg/L	Aesthetic	1.5
Iron as Fe	µg/L	Chronic Health	2 000
		Aesthetic	300
Manganese as Mn	µg/L	Chronic Health	400
		Aesthetic	100
Aluminium as Al	µg/L	Operational	300
Total Coliforms count	cfu/100mL	Operational	10
E.Coli (<1 taken as 0)	cfu/100mL	Acute Health Micro	0
Heterotrophic Plate Count	cfu/ mL	Operational	1 000
Cytopathogenic Viruses	cfu/10 L	Acute Health Micro	0
Cryptosporidium Species	cfu/10 L	Acute Health Micro	0
Gardia Species	cfu/10 L	Acute Health Micro	0
Chloroform	mg/L	Chronic Health	0.3
Bromodichloromethane	mg/L	Chronic Health	0.06
Dibromochloromethane	mg/L	Chronic Health	0.1
Bromoform	mg/L	Chronic Health	0.1
Combined Trihalomethanes	mg/L	Chronic Health	1
Phenols	µg/L	Aesthetic	10
Nitrate as N	mg/L	Acute Health Chemical	11
Nitrite as N	mg/L	Acute Health Chemical	0.9
Antimony as Sb	µg/L	Chronic Health	20
Arsenic as As	µg/L	Chronic Health	10
Cadmium as Cd	µg/L	Chronic Health	3
Chromium as Cr	µg/L	Chronic Health	50
Cobalt as Co	µg/L	Chronic Health	500
Copper as Cu	µg/L	Chronic Health	2 000
Lead as Pb	µg/L	Chronic Health	10
Mercury as Hg	µg/L	Chronic Health	6
Nickel as Ni	µg/L	Chronic Health	70
Selenium as Se	µg/L	Chronic Health	40
Vanadium as V	µg/L	Chronic Health	200
Cyanide	µg/L	Acute Health Chemical	200
Total Organic Carbon as C	mg/L	Chronic Health	10

APPENDIX 4 FOSSIL CHANCE FIND PROTOCOL

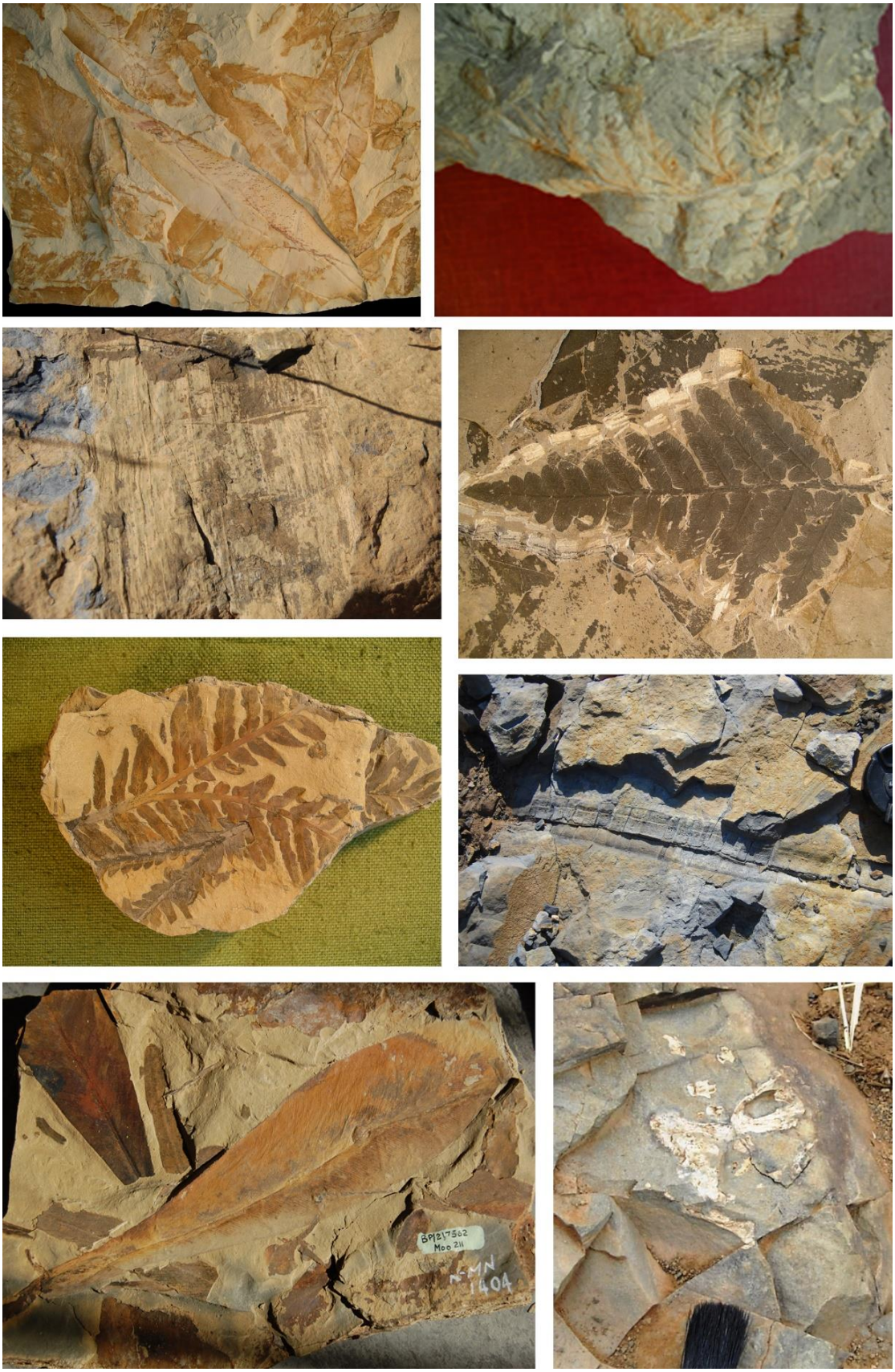
PROF MARION BAMFORD: PALAEONTOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED WEMBEZI SHOPPING CENTRE, FARM KLIPPLAAT DRIFT 1009, ESTCOURT, KWAZULU NATAL PROVINCE: AUGUST 2021

CHANCE FIND PROTOCOL

Monitoring Programme for Palaeontology – to commence once the excavations and construction activities begin.

1. The following procedure is only required if fossils are seen on the surface and when excavations commence.
2. When excavations begin the rocks and must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone, coal) should be put aside in a suitably protected place. This way the project activities will not be interrupted.
3. Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones (for example see Figure below). This information will be built into the EMPr's training and awareness plan and procedures if required.
4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
5. If there is any possible fossil material found by the developer/environmental officer then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible.
6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
7. If no good fossil material is recovered then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils.
8. If no fossils are found and the excavations have finished then no further monitoring is required.

Examples of fossils from the Ecca and Beaufort Groups.



Examples of fossil plant impressions from the *Glossopteris* flora, Vryheid Formation. Bottom right shows a bone found in situ.

APPENDIX 5 STORMWATER MANAGEMENT PLAN (PROPOSED)

APPENDIX 6 SPILLAGE CONTINGENCY PLAN

SPILLAGE CONTINGENCY PLAN FOR THE WEMBEZI JUNXION PETROL FILLING STATION

This contingency plan delineates the specific measures to be carried out in the event of an accidental spill of any hazardous substance at the Wembezi JunXion Petrol Filling Station (PFS) site. It must be emphasized that in the event of an accidental spill, the response must be both immediate and correct.

It is essential that personnel involved with any activity that requires the use of potentially dangerous substances be familiar with this contingency plan. Detailed staff training and regular tool box talks relating to fuel handling and spills, as well as emergency drills relating to spills will be undertaken on a regular basis. Training Registers will be kept.

Preventative Measures
The primary obligation is to reduce to an absolute minimum the possibility of spilled material entering watercourses or other areas where the spillage could cause harm. To help minimize the possibility of a spill the following procedures will be adhered to:

1 Transportation

The transportation of chemicals will comply with all pertinent SANS codes including placarding and container specifications. In addition the following will be observed:

- Trucks carrying fuels will comply with speed limits on public roads and will never travel faster than is safe for the prevailing conditions.
- Trucks transporting fuels will be maintained in a safe and roadworthy condition.
- Hazardous substances will be moved around the site as little as possible.
- Offloading of fuels will be carefully monitored and correct procedures followed at all times.

2 Storage and handling

- Materials will be stored and handled in accordance with the EMPr, relevant SANS codes and their specific SDSs. Provisions of the Hazardous Substances Act and Occupational Health and Safety Act will be complied with.
- Staff will be fully trained on the risks associated with each operation; training will be conducted on an ongoing basis to ensure that they are familiar with their tasks to reduce the risk of human error and accidents.
- Re-fuelling will take place on a hardened surface.
- No vehicle maintenance will take place on site except in designated and suitable engineered areas.
- Fuel lines will have emergency shut off valves in case of an emergency. Employees must be made aware of the location of the emergency shut off valves.
- Contaminated stormwater and any spillages collected in the forecourt will be collected in the s/w sumps which are directed to the sand / oil grease trap. This will be regularly serviced, records of such service must be available on file for audit purposes.
- Spillages of fuel occurring at the storage tanks (whilst being filled) will drain to the bunded filler point; this will then also drain to the sand / oil grease traps and then to the municipal sewer
- Automatic cut-off devices must be installed to prevent overfills and spillages during tanker delivery and dispensing
- Tank monitoring will be undertaken on the underground petrol and diesel storage tanks (to include regular fuel reconciliations).

Procedure for Spillage Cleaning
In the event of a spill it is of paramount importance that the discharge be stopped at its source and that the spillage be contained. Spill kits must be made available on site and conveniently located. Shovels and other hand tools should be used for immediate containment and or channelization of the spillage into the containment area.
In the event of a spill, the following actions should be initiated in the listed order:

a. Locate the source and try to stop the spill where it originates;
b. Contain the spilled material;
c. Notify the site supervisor / manager;
d. Clean up the spillage (see below);
e. Disposal at an appropriate landfill (licenced and authorized to take hazardous waste);
f. Determination of soil, groundwater or other environmental impact;
g. The site supervisor / manager to decide upon further actions required and to report the incident to the relevant authorities;
h. Undertake remedial action if required in consultation with the Department of Economic Development, Traditional and Environmental Affairs (EDTEA) and the Department of Water and Sanitation (DWS).

The site supervisor / manager will:

a. Ascertain the spill particulars:
    - Location;
    - Time of spill;
    - Name of material spilled;
    - Quantity spilled;
    - Equipment and manpower needed to contain and clean up;
    - Disposal requirements.

b. Notify the authorities:

The following authorities must be notified (within 24 hours) if the spill cannot be contained or poses a serious threat to the local environment:

- The Local Authority - Inkosi Langalibalele Local Municipality (ILLM);
- Department of Water and Sanitation (DWS).
- Department of Economic Development, Tourism and Environmental Affairs (EDTEA): Pollution and Waste Management;
- The Local Fire Department;
- Any other affected party.

Note: If there is an immediate threat to a water resource DWS and EDTEA must be notified immediately. A specialist must be contacted to take water samples as soon as possible.

A safe disposal certificate must be obtained for any contaminated material taken off site for disposal / treatment.

A Section 30 (S30) Report, in terms of the National Environmental Management Act, as amended, (NEMA) must be compiled and sent to the relevant departments within 14 days of the incident – see below (extract from the official S30 form).

'This form provides a template for the emergency incident report required in terms of section 30(5) of the National Environmental Management Act (Act No. 107 of 1998) (hereinafter "NEMA") in which the responsible person or, where the incident occurred in the course of that person´s employment, his or her employer, must, within 14 days of the incident, report to the Director General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including: (a) the nature of the incident; (b) the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects; (c) initial measures taken to minimise impacts; (d) causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and (e) measures taken and to be taken to avoid a recurrence of such incident.

In terms of section 30(1)(a) of NEMA, an "incident" means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed.

In line with section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996), "serious" is taken to be a measure of the impact of an incident where such an incident has had, could have had, is having, or will have a negative impact on human health or well-being.'

A Root Cause Analysis will be undertaken to establish the reason for the incident and action will be taken to reduce the risk of the incident occurring again.

All activities will be carefully documented and records retained on site.

Spill kits

These must be made available on site, conveniently located and appropriately sizes. Contents to include:

- Spades, brooms, dust pans
- Absorbent material (e.g. vermiculite)
- Booms
- PPE: gloves, safety glasses / goggles, respirators)

The layout of the PFS is shown in the plan below. The entire site is hard-surfaced.

- Spillages of fuel occurring at the pumps will drain t to the s/w sumps; these drain to the sand / oil grease traps and then to the municipal sewer;

- Spillages of fuel occurring at the storage tanks (whilst being filled) will drain to the bunded filler point; this then drains to the sand / oil grease traps and then to the municipal sewer;

The sand / oil grease trap will be desludged as and when required. The sludge and any contaminated residue collected must be disposed of at a licenced waste management facility, in a correct manner that will not negatively harm the environment; safe disposal certificated to be kept.

LAYOUT OF THE PFS