

ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE DEVELOPMENT OF A RESIDENTIAL DWELLING:

REM OF ERF 680, LEISURE BAY KZN

**EDTEA REFERENCE NO:
DC21/0027/2021 KZN/EIA/0001654/2021**

NOVEMBER 2021

REPORT PREPARED FOR:

**Mary Chettle
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REPORT PREPARED BY

**Metamorphosis Environmental Consultants
P. O. Box 2116,
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TABLE OF CONTENTS

1.	Introduction	3
2.	Project EAP	3
3.	Legal Requirements	4
4.	Environmental Management Programme	4
4.1	Introduction	4
4.2	Training and Induction of Employees	5
4.3	Complaints Register and Environmental Incident Book	6
4.4	Environmental Monitoring	6
4.5	Non-Compliance with the EMPr	6
4.6	EMPr Amendments / EMPr Instructions	6
5.	Responsibility of the Team	7
5.1	Project Applicant / ECO	7
5.2	Contractor / Site Manager	7
6.	Identification of Environmental Impacts	8
6.1	Positive Impacts	8
6.2	Negative Impacts	8
7.	Guidelines for Environmental Management	9
7.1	Planning Phase and Design	9
7.2	Construction Phase	10
7.3	Operation Phase	13
8.	Closure Requirements	13
9.	Conclusions	15

APPENDICES

Appendix 1	Site Layout Plan: Rem of ERF 680, Leisure Bay
Appendix 2	Site Photos
Appendix 3	Curriculum Vitae: Vicki King (EAP)

ABBREVIATIONS / ACRONYMS

EA	Environmental Authorisation
EDTEA	Department of Economic Development, Tourism and Environmental Affairs (KZN Provincial Department)
ECO	Environmental Control Officer
EMPr	Environmental Management Programme
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
OH&SA	Occupational Health and Safety Act, Act 85 of 1993
RNLM	Ray Nkonyeni Local Municipality
SMME	Small, medium and macro enterprises

1. INTRODUCTION

Metamorphosis Environmental Consultants has been appointed by Mary Chettle (owner of Rem of ERF 680, Leisure Bay) to compile an Environmental Management Programme (EMPr) for the proposed development of a residential home on the property, in line with all the building regulations and specifications of the Ugu District Municipality.

The proposed activity includes the construction of a residential dwelling; the scope of work includes:

- Outbuildings
- Double Garage
- House (double story building)
- Retaining walls
- Conservancy tank and grey water collection tanks
- Rainwater collection tanks
- Swimming pool and deck

The dwelling will be constructed on the vacant piece of land, zoned as Residential Only 3 (as per the Ray Nkonyeni Municipal Scheme). The property was previously cleared; there are a few remaining indigenous Milkwood trees on the property; one at the back of the property within the Dover Crescent (Western) boundary and a few within the front (Eastern) boundary of the site. The existing Milkwoods will remain; they will not be cut down or removed; these are shown on the proposed Site Layout Plan; refer Appendix 1 below.

The EMPr (this document) is the primary document for managing potential environmental risks during the project. It has been compiled as per requirements of Appendix 4 of GNR 982 and details the environmental controls to be implemented by the project proponent and the contractors, as per their respective responsibilities. The EMPr is a live document and should be revised and updated to reflect any new information that may arise or any changes that may take place.

2. PROJECT EAP

Full Names	Vicki King
Company Name	Metamorphosis Environmental Consultants
Telephone	031 764 7554
Fax	031 764 7897
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, EMPs, EIA, sustainability, environmental training and facilitation, waste management licence applications

3. LEGAL REQUIREMENTS

The EMPr forms part of the required documentation in support of the EA application process submitted to EDTEA with the following reference number:

- EA Application: EDTEA Ref No: **DC21/0027/2021 KZN/EIA/0001654/2021**

The EMPr has been prepared in compliance with GNR 982 of the 2014 EIA Regulations, Appendix 4 (as amended 2017). It should be noted that the Occupational Health and Safety Act (Act 85 of 1993) (OH&SA) does not fall within the remit of the EA, therefore this EMPr does not address all the regulatory requirements in terms of the OH&SA; it is the responsibility of the contractor to identify and comply with the relevant OH&SA Regulations.

Other applicable legislation which the contractor must comply with includes, amongst others:

- The Constitution of the Republic of South Africa Act 108 of 1996
- National Environmental Management Act 107 of 1998
- National Environmental Management: Protected Areas Act 57 of 2003
- National Environmental Management: Waste Management Act 59 of 2008
- Health Act 63 of 1977
- National Heritage Resources Act 25 of 1999
- Conservation of Agricultural Resources Act No. 43 of 1983
- Environmental Conservation Act No. 73 of 1989
- National Heritage Resources Act No. 25 of 1999
- National Environmental Management: Biodiversity Act 10 of 2004
- National Water Act 36 of 1998

4. ENVIRONMENTAL MANAGEMENT PROGRAMME

4.1 Introduction

The aim of this Environmental Management Programme (EMPr) is to identify and minimise, as far as possible, potential impacts that the development may have on the surrounding biophysical and socio-economic environment.

The purpose of the EMPr is to:

- Encourage good management practices through planning and commitment to environmental issues;
- Define how the management of the environment is reported and performance evaluated;
- Provide rational and practical environmental guidelines to:
 - Minimise disturbance of the natural environment;
 - Prevent or minimise all forms of pollution;
 - Protect indigenous flora and fauna;
 - Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment; and,
 - Adopt the best practicable means available to prevent or minimise adverse environmental impacts.
- Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of wastes;
- Describe all monitoring procedures required to identify impacts on the environment; and,

- Train employees and contractors with regard to environmental obligations.

The activities which will be governed by this EMPr include:

- The construction of the residential home and associated infrastructure;
- The management of stormwater, grey water and sewage;
- OH&S monitoring;
- Site management; and
- Waste management.

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

4.2 Training and Induction of Contractor's Employees

The contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project. The contractor will have to give some assurance that they understand the EMPr and that they will undertake to comply with the conditions therein. All senior and supervisory staff members shall familiarise themselves with the full contents of the EMPr. They shall know and understand the specifications of the EMPr and be able to assist other staff members in matters relating to the EMPr. The person undertaking the training must have extensive understanding and knowledge of environmental issues.

All employees shall be appropriately briefed about the EMPr and relevant occupational health and safety issues.

All project personnel are required to receive training of a type and level of detail that is appropriate for the environmental aspects of their work. As a minimum all personnel are required to complete the training requirement stipulated in the table below:

Training Requirements

Training Requirement	Frequency
Site induction: <ul style="list-style-type: none"> • Key environmental issues • Relevant condition of the EA • Waste management • Minimise potential impacts to air, noise and water quality • Surface and groundwater contamination • Incident reporting procedures • Pollution prevention practices • Roles and responsibilities relating to environmental management 	Prior to commencement of work by employees.
Ad-hoc Talks (to deliver specific training in an aspect of work) <ul style="list-style-type: none"> • Waste handling procedures • Ad hoc training and awareness for any aspect of the EMPr identified 	Prior to commencement of work by employees and as required.

4.3 Complaints Register and Environmental Incident Book

Any complaints received from the community / neighbouring properties must be registered and recorded by the contractor on site. The contractor to respond accordingly. The following information will be recorded:

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

All complaints received will be investigated and a response (even if pending further investigation) is to be given to the complainant within two (2) days.

All environmental incidents occurring on the site will be recorded. The following information must be provided:

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

The contractor will ensure that all complaints and incidents have been dealt with in an appropriate manner.

4.4 Environmental Monitoring

Environmental monitoring of the construction will be undertaken by the Environmental Control Officer (ECO) on a bi-weekly basis. Monitoring will be undertaken to ensure compliance with all aspects of the EMPr.

In order to facilitate communication between the ECO, Resident Engineer (RE) (if applicable) and Contractor, it is important that a suitable chain of command is structured that will ensure that the ECO's recommendations are complied with.

4.5 Non-Compliance with the EMPr

Difficulties may be encountered with carrying out mitigation measures that could result in future non-compliance. The contractor shall put procedures in place to motivate staff members to comply with the EMPr, and to deal with acts of non-compliance or damage to the environment.

4.6 EMPr Amendments / EMPr Instructions

EMPr amendments (relaxation or revision of mitigation measure) shall not be allowed without approval from the relevant authority, i.e. the EDTEA. Motivations for amendments to the EMPr may be discussed with the Department.

5. RESPONSIBILITIES OF THE TEAM

5.1 Project Applicant / ECO

- To ensure the architect designs the home according to the best possible environmental practices;
- To ensure site plans receive the necessary approvals;
- To ensure that the EMPr and EA are made available and a copy given to the contractor / site manager;
- To ensure that the contractor is aware of the EMPr requirements and therefore his/her responsibilities;
- To appoint a suitably qualified contractor;
- To notify the competent authority and other stakeholders in the event of any accidental infringements of the EMPr and to take appropriate remedial action as required by the competent environmental authority; and
- To assume and carry out the duties of the ECO.

5.2 Contractor / Site Manager

- To familiarize him/herself with and understand the contents of the EMPr and EA;
- To ensure that all employees understand what is expected during the undertaking of activities on site;
- To monitor that the activities undertaken on site comply with the environmental requirements;
- To ensure compliance with local bylaws, etc.;
- To be familiar with the recommendations and mitigation measures of this EMPr;
- To implement these measures;
- To monitor site activities on a daily basis for compliance;
- To ensure compliance with applicable Occupational, Health and Safety Act (Act 85 of 1993) and Hazardous Substances Act (Act 15 of 1973) and other relevant legislation;
- To notify the Applicant of any activities undertaken which may have a negative impact on the environment;
- First aid box, emergency procedure and numbers to be contacted in case of urgency must be made known to all people working on site.

6. IDENTIFICATION OF ENVIRONMENTAL IMPACTS

The following potential environmental impacts have been identified to result from the development of the residential dwelling:

6.1 Positive Impacts:

- **Socio-economic;**
 - Employment creation and capacity building
 - Opportunities for local contractors and SMMEs
 - Increased trade in the area
 - Increased tourism in the area
- **Impacts on Neighbouring Properties**
 - Reduced potential for crime
 - Improved aesthetics / effect on property values

6.2 Negative Impacts

- **Impacts on Neighbouring Properties**
 - Increased potential for crime
 - Degraded aesthetics / effect on property values
- **Potential Health, Safety and Nuisance Impacts**
 - The effect of increased noise on surrounding receivers during construction
 - Health and safety risks to those in close proximity to construction activities
 - Increased dust
- **Impacts on the biodiversity, other natural habitats (terrestrial and aquatic) and water quality**
 - Impacts on topsoil
 - Loss/degradation of terrestrial vegetation and natural habitat
 - Soil erosion
 - Water Quality impacts
 - Stormwater impacts
 - Waste generation
 - Usage of water and power

7. GUIDELINES FOR ENVIRONMENTAL MANAGEMENT

7.1 Planning and Design Phase

Aspect	Description of Action	Period of Implementation	Person Responsible for Implementing Action
1. Roles and Responsibilities	The Project Applicant is responsible for ensuring the appropriate / correct planning and design activities proposed.	Prior to commencement of construction	Project Applicant
	The Project Applicant to assume the responsibilities of the ECO.	Duration of the project	Project Applicant
2. On-site Documentation	The Project Applicant must ensure that the contractor has a copy of this EMPr and the EA, and he/she must be familiar with the contents.	Duration of the project	Project Applicant
3. Authority Consultation / Approval	Approval for the buildings and applicable infrastructure to be given by the RNLM.	Prior to commencement of construction	Project Applicant
4. Pollution	Any potential source of pollution must be identified by the Project Applicant and appropriate measures must be taken to prevent any pollution of the environment.	Duration of the project	Project Applicant
5. Soil and Water Quality	The Project Applicant must ensure that there are no activities undertaken that will affect soil and water quality.	Duration of the project	Project Applicant
	Stormwater must be managed in accordance with RNLM approvals.	Duration of the project	Project Applicant
	Effluent must be managed in accordance with RNLM approvals.	Duration of the project	Project Applicant

7.2 Construction Phase

Aspect	Description of Action	Period of Implementation	Person Responsible for Implementing Action
1. Roles and Responsibilities	The construction activities for the project must be carried out by the contractor appointed by the Project Applicant, as per the plans approved by the RNLM.	Duration of construction period	Contractor
2. On-site Documentation	The Contractor must ensure that a copy of this EMPr and the EA are available on site at all times.	Duration of the project	Contractor
3. Training	The Contractor has the responsibility to conduct environmental training to employees to ensure that they understand their role in environmental management.	Duration of construction	Contractor
4. Duties of ECO	The ECO must monitor the site bi-weekly for the duration of the construction period in terms of this EMPr and the EA.	Duration of construction period	ECO
5. Record keeping	The Contractor must keep records relating to compliance/ non-compliance with the conditions of the EA and EMPr.	Duration of construction period	ECO
	The Contractor must keep records relating any complaints received and action taken.		
6. Public Liaison	The Project Applicant must send out correspondence to landowners/neighbours located adjacent to the site notifying them of the commencement of construction activities. Contact numbers should be included in the correspondence should landowners wish to make complaints during the construction phase.	Prior to commencement of construction	Project Applicant / ECO
7. Construction Activities	Construction area to be kept clean and tidy (i.e. good housekeeping should be employed).	Duration of construction period	Contractor
	A portable toilet must be provided for employees.	Duration of construction period	Contractor
	All litter must be collected from the construction area daily.	Duration of construction period	Contractor
8. Staff Conduct	The contractor must understand the contents of the EMPr and be competent in implementing and monitoring the requirements.	Duration of construction period	Project Applicant / Contractor
	Construction workers must be made aware of their specific responsibilities in terms of environmental impacts i.e. controlling noise levels, reducing dust.	Prior to commencement of construction	Contractor
	No alcohol / drugs are allowed on site and no workers under the influence will be permitted on site.	Duration of construction period	Contractor / All staff
	No firearms or traditional weapons allowed on site.	Duration of construction	Contractor / All staff

Aspect	Description of Action	Period of Implementation	Person Responsible for Implementing Action
		period	
	Fires / open flames will not be allowed on site.	Duration of construction period	Contractor / All staff
	No pets will be allowed on site. No trapping of any animals will be allowed.	Duration of construction period	Contractor / All staff
	Staff and contractors may not use any area for ablutions apart from the designated ablutions facilities.	Duration of construction period	Contractor / All staff
	Staff and contractors to be made aware of and educated in the scarcity and value of water.	Duration of construction period	Contractor / All staff
9. Water Management	The contamination of stormwater must be avoided at all times.	Duration of construction period	Contractor
	No water contaminated with cement or sediment etc. must be allowed to leave the site.	Duration of construction period	Contractor
	The environmental impacts of construction (e.g. excavations) must be restored as soon as possible in order to reduce the impact of stormwater run-off.	Duration of construction period	Contractor
	The quality, quantity and flow direction of any surface water runoff shall be established prior to disturbing any area for construction purposes.	Duration of the construction period	Contractor
	Water wastage to be minimised as far as possible.		
10. Hazardous substances	Any spills must be dealt with in the correct manner and waste disposed of appropriately.	Duration of construction period	Contractor
11. Waste and Materials Management	Appropriate waste disposal receptacles must be placed within the construction area.	Prior to commencement of construction	Contractor
	All contractors must be made aware that they will be required to remove all their waste from site and dispose of it legally and that the Project Applicant may request to view the safe disposal certificates.	Prior to commencement of construction	Contractor / ECO
	All staff must be instructed to dispose of all waste in a proper manner	Prior to commencement of construction	Contractor / All staff
	Refuse must be placed in the designated skips/bins which must be regularly emptied. These should remain within demarcated areas and should be designed to prevent refuse from being blown out by wind.	Duration of construction period	Contractor
	Recycling and the provision of separate waste bins for different types of waste should be encouraged.	Prior to commencement of construction	Contractor
	Cement and other powders must not be mixed	Duration of	Contractor

Aspect	Description of Action	Period of Implementation	Person Responsible for Implementing Action
	during excessively windy conditions.	construction period	
	Any hazardous wastes must be appropriately stored and disposed of.	Duration of construction period	Contractor
	No burning of refuse may take place on the site.	Duration of construction period	Contractor / All staff
	Littering on site is forbidden and the site shall be cleared of all litter at the end of each working day	Duration of construction period	Contractor / All staff
12. Site Access /Transportation	Site access will be strictly controlled; only employees must be allowed on site.	During operation	Project Applicant / Contractor
	No pedestrians to be allowed on site.	Duration of construction	Project Applicant / contractor
	All employees to be made aware that they may only access the site through the main entrance.	Duration of construction	Project Applicant / Contractor
	Construction vehicles must be restricted to demarcated areas within the site.	Duration of construction period	Contractor
13. Social Impact	Disruption of access for neighbouring landowners must be minimised and must have the Project Applicant's permission.	Duration of construction period	Contractor
	The Project Applicant must inform neighbours of possible disruptive activities at least 24 hours beforehand.	Duration of construction period	Project Applicant
	A detailed complaints register must be maintained by the Contractor and all complaints should be documented.	Duration of construction period	Contractor
	Local people must be given preference with regards to jobs created during the construction phase.	Duration of construction period	Contractor
14. Visual Impact	The site must be kept clean to minimise negative visual impacts.	Duration of construction period	Contractor
	The contractor must ensure the timeous removal of waste from the site throughout the project and waste can be stored on site for a short period of time.	Duration of construction period	Contractor
15. Dust/Air Pollution	Dust producing delivery loads should be covered with tarpaulins.	Duration of construction period	Contractor
	No fires are allowed at the site	Duration of construction period	Contractor / All staff
16. Noise	Machinery and vehicles must be kept in good working order for the duration of the project to minimise noise nuisance to neighbours.	Duration of construction period	contractor

Aspect	Description of Action	Period of Implementation	Person Responsible for Implementing Action
	Compliance with appropriate legislation with respect to noise must be achieved.	Duration of construction period	Contractor
	Workers must be instructed to keep shouting, whistling, etc. to a minimum.	Duration of construction period	Contractor
	Noisy activities must be restricted to the times given in the Project Specification of General Conditions of Contract i.e. weekdays 07h00 to 16h30, Saturdays 07h00 to 15h00. No work on Sundays	Duration of construction period	Contractor
17. Safety and Security	The construction area should be secured in order to reduce the opportunity for trespassing.	Duration of construction period	Project Applicant / Contractor
	Contractor to comply with Occupational Health & Safety Act, No 85 of 1993 to ensure the health and safety of the workers	Duration of construction period	Contractor
18. Landscaping	Contractor to ensure the Milkwoods on site are not damaged / affected during construction		

7.3 Operational Phase

Aspect	Description of Action	Period of Implementation	Person Responsible for Implementing Action
1. Roles and Responsibilities	The Project Applicant is responsible for ensuring the operational activities for the facility are carried out as per all legal requirements and in terms of this EMP and the EA.	During operation	Project Applicant
2. On-site Documentation	The Project Applicant must ensure that a copy of this EMP and the EA are available on site at all times.	During operation	Project Applicant
3. Public Liaison	The Project Applicant to liaise with neighbours.	During operation	Project Applicant
4. Staff Conduct	Employees must be made aware of their specific responsibilities in terms of environmental impacts i.e. controlling noise levels, waste management, etc.	During operation	Project Applicant
	No workers under the influence of alcohol or drugs will be permitted on site.	During operation	All staff
	No firearms or traditional weapons allowed on site.	During operation	All staff
	Staff and occupants may not use any area for ablutions apart from the designated ablutions facilities.	During operation	All staff
	Staff and occupants to be made aware of and educated in the scarcity and value of water. Water wastage to be minimised as far as	During operation	All staff

Aspect	Description of Action	Period of Implementation	Person Responsible for Implementing Action
	possible.		
5. Water Management	Clean and dirty water will be separated at all times.	During operation	Project Applicant
	Stormwater from the roofs will be collected in tanks for use on site.	Prior to commencement of operation	Project Applicant
	Excess stormwater will be discharged to the stormwater drain on site.		
	Water saving ideas and devices should be employed on site at all times.		
6. Sewage Management	Grey water will be collected in tanks for use on site / in the garden.	During operation	Project Applicant
	Solids will be collected in a conservancy tank and sent to sewer (via tanker) after the necessary approvals have been obtained from the municipality.	During operation	Project Applicant
7. Waste Management	All refuse must be disposed of only in the receptacles provided for such use and these must remain covered.	During operation	Project Applicant
	Waste to be separated on site and recycled as far as possible.		
	No waste may be disposed of outside areas designated for waste disposal. All waste must be disposed of at an appropriate municipal or other appropriate, licenced disposal site.	Prior to commencement of operation	Project Applicant
	The applicant must ensure the timeous removal of waste from the site throughout the project; waste must only be stored on site for a short period of time.	During operation	Project Applicant /contractor
10. Site Access /Transportation	Site access will be strictly controlled.	During operation	Project Applicant
	The site is fenced to a height of 1.8 m and secured in order to reduce the opportunity for trespassing and entrance gates must be closed at all times.	During operation	Project Applicant
11. Noise	Compliance with appropriate legislation with respect to noise must be achieved.	During operation	Project Applicant
	Workers must be instructed to keep shouting, whistling, etc. to a minimum.	During operation	Project Applicant / All staff
12. Energy	Staff and occupants to be encouraged to limit electricity usage as far as possible.	During operation	Project Applicant / All staff
	Energy saving devices to be should be employed on site at all times.		
14. Health and Safety	The applicant must ensure strict compliance with the Occupational Health and Safety Act 1993 (Act 85 of 1993) to ensure the health and safety of the workers.	During operation	Project Applicant
	Adequate fire-fighting equipment must be present on the site and constantly maintained/checked.	During operation	Project Applicant

Aspect	Description of Action	Period of Implementation	Person Responsible for Implementing Action
15. Visual impacts	Ensure all buildings and fencing are properly maintained and regularly painted.	During operation	Project Applicant
	Ensure that the site is kept neat and tidy at all times with no litter/waste outside designated areas.	During operation	Project Applicant
	The gardens to be kept neat and tidy; indigenous vegetation to be planted.	During operation	Project Applicant
16. Pest Control	Appropriate pest control to be undertaken at all times on the site.	During operation	Project Applicant
20. Landscaping	The Milkwoods to be protected and may not be cut down.	During operation	Project Applicant
	Indigenous vegetation to be planted as far as possible.	During operation	Project Applicant
21. Environmental Awareness Plan	The site to be operated in accordance with this EMPr.	During operation	Project Applicant

8. CLOSURE REQUIREMENTS

This EMPr has not detailed the requirements of the decommissioning phase as this is not applicable.

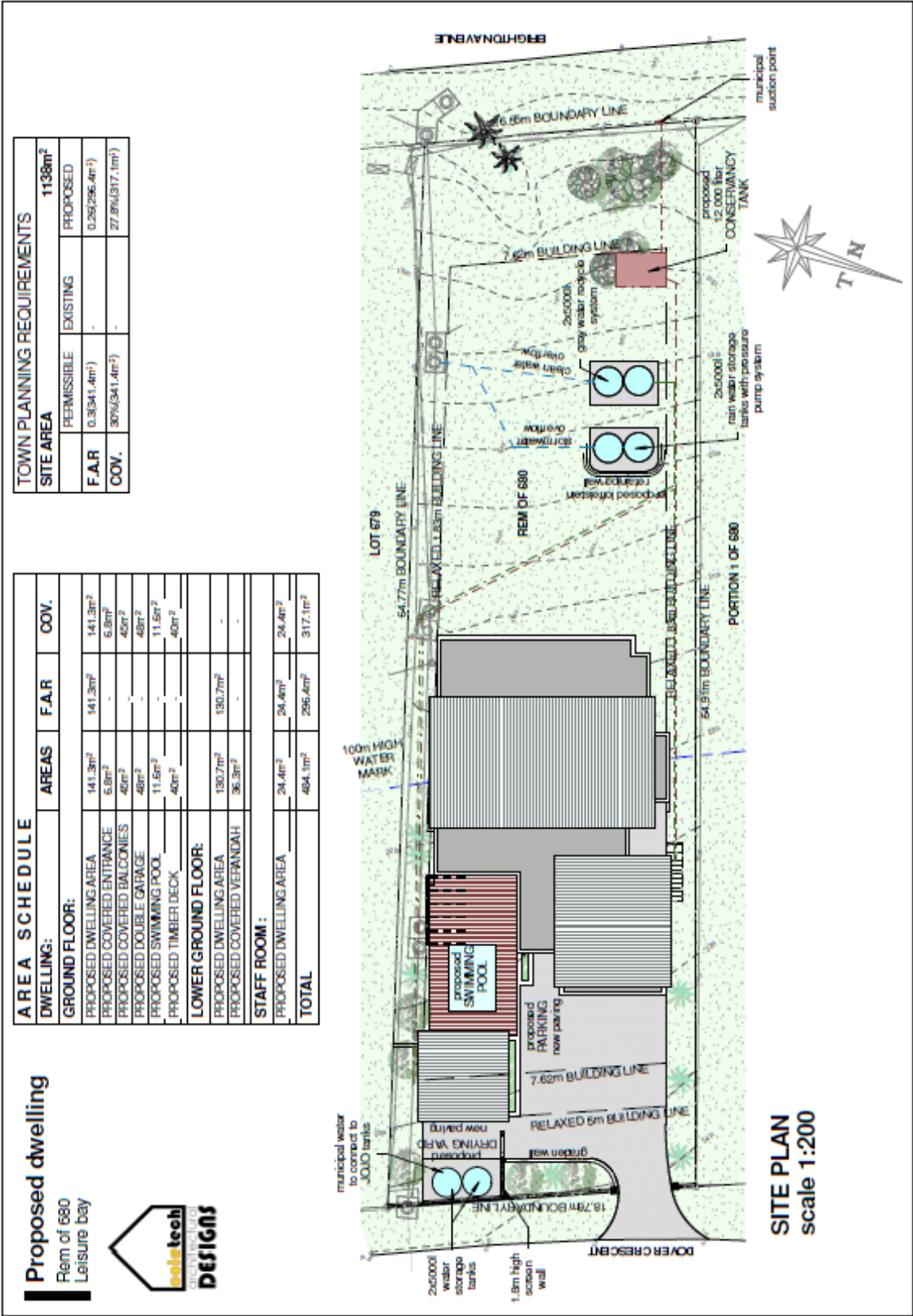
9. CONCLUSION

The EMPr must be reviewed periodically throughout the life of the project to cater for changes that may take place during operations e.g. stormwater, grey water, sewage and waste management, etc.

EMPr Prepared by

Ms. V King PrSciNat, LLM, BSc. Reg EAP (EAPASA).
Senior Environmental Consultant
Metamorphosis Environmental Consultants

APPENDIX 1
SITE LAYOUT PLAN: REM OF ERF 680, LEISURE BAY



**APPENDIX 2
SITE PHOTOS**



Single Milkwood tree within western boundary fence (Dover Crescent)



Milkwood trees and vegetation within eastern boundary fence (Brighton Avenue)

APPENDIX 3

CURRICULUM VITAE: VICKI KING (EAP)

VICKI KING

CURRICULUM VITAE

Professional Qualifications

Masters Degree (LLM) in Environmental Law, University of Natal, Durban 2003.

BSc (Joint Honours) Biological Sciences and Geography, University of Birmingham, England in 1988.

Short Courses

Integrated Environmental Management (IEM) Theory and Practice – University of Cape Town 1992.

Cultivated Pasture Management, Cedars Agricultural College 1998.

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, NNM, 2012

Train the Trainer, KZN Training, 2014

UN Globally Harmonised System of Chemical Classification, RiskChem, 2014

Environmental Law Update, Shephstone and Wylie, 2014.

Sharpening the Tool; New Techniques in Environmental Impact Assessment, SE Solutions 2014.

Carbon Footprinting – GCX, February 2017.

Year of Birth

1987

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 Walsley for 13 years and reviewed every technical document produced in the office during this time. She set up MEC in 2008 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 Potchefstroom 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 1998
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

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	Westerman	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.	eThekweni Municipality	2009 - present.	Chair
Ongoing consultation at the Kwadukuza Landfill site in KZN.	DCLM	2010 - present.	EAP
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	Asamang	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 Somkhale 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 Midstone and Faldon Sugar Mills.	Voermol	2016 and 2018	ECO
Environmental monitoring for Cell 2 and LTP construction at Kweadukuze Landfill.	DCLM	2015	ECO
Allen Plant monitoring for Kweadukuze Landfill site.	DCLM	2013 - 2019	ECO
Environmental Auditing			
Shadow audit for Diverselylever 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 Somkhale Coal Mine.	Tendele Coal	2011	Lead Auditor
Environmental Legal Audit for Zululand Anthracite Colliery.	GC-S	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/OMG	2018	Lead Auditor
Audit of Bulk Fuel Storage facilities at OR Tambo, George, Wonderboom and East London Airports	BP/OMG	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.	eThekwin	1999	Lead Facilitator
EIA Review training for eThekwin Municipal officials	eThekwin	2000	Lead Facilitator
Environmental Law training for Metro Parks Department	eThekwin	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 Supervisors/Managers.	Unitrans	2012	Lead Facilitator
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 SI Reservoir, Kloof.	eThekwin	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	eThekweni	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 Spoonnet 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.	Pemprop	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.	Umgent Water	1994	Project leader and EAP
Full EIA for the Gokee 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	Umgent 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.	Mhlathuze Water	1999	Project leader and EAP
Full EIA for the Murwa 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 Salcoor	2003	Project leader and EAP
EIA for the Durban Solid Waste CDM project (Landfill gas to Energy)	eThekweni	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 Salcoor Expansion project.	Sappi Salcoor	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 Inkwad Housing Development in Kwadukuza Municipality	Chapman Enterprises	2008	Project leader and EAP
Assistance to the KZN Provincial Department of Agriculture and Environmental Affairs with the closure of files and issuing of ROCs for 34 applications.	DAEA	2009	EAP
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	eThekweni 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.	eThekweni Municipality	1993	EAP
Seychelles Chapter in World Summit Sustainable Development book in order to provide a constructive	South African Assessment of	2003	Research and compilation

analysis of the application of Environmental Assessment.	Impact Assessment		
Strategic planning for the identification of Major Hazardous Installations in eThekweni.	eThekweni Municipality	2004	EAP
Duty of Care study for Sappi Salcor Industrial Modernisation Project	Sappi Salcor	2005	EAP
Closure Planning			
Closure Plan for Asamang Manganese, Cato Ridge.	Asamang	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.	OCS	2007	Review
Review of Various mining applications for OCS Consultants	OCS	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	OMG	2012-present	Review
Review of the Chitima Mining EIA in Mozambique	OCS	2018	Review
Review of Somkhale Mining application EMP	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 RealWorld Learning event for Exel in Hoodspruit.	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/OMG	2018	Author
Wonderboom Airport Bulk Fuel Storage	BP/OMG	2018	Author
George Airport Bulk Fuel Storage	BP/OMG	2018	Author
East London Bulk Fuel Storage	BP/OMG	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