DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME
EDTEA REF NO:

THE PROPOSED UPMARKET MIXED-USE DEVELOPMENT IN MEERENSEE,
RICHARDS BAY WITHIN THE JURISDICTION OF THE CITY OF UMHLATHUZE,
KWAZULU NATAL PROVINCE: THE RIDGE

Prepared by: Emvelo Quality and Environmental Consultant (PTY) Ltd

On behalf of
Sotobe Group (Pty) Ltd.

October 2018
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<td>CA</td>
<td>Competent Authority</td>
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<tr>
<td>DWS</td>
<td>Department of Water and Sanitation</td>
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<td>DEDTEA</td>
<td>Department of Economic Development, Tourism and Environmental Affairs</td>
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<td>EA</td>
<td>Environmental Authorisation</td>
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<td>EAP</td>
<td>Environmental Assessment Practitioner</td>
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<tr>
<td>ECO</td>
<td>Environmental Control Officer</td>
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<td>EMPr</td>
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<td>I&amp;AP</td>
<td>Interested and Affected Parties</td>
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<tr>
<td>NEMA</td>
<td>National Environmental Management Act</td>
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<td>NEMWA</td>
<td>National Environmental Management Waste Act</td>
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<td>NWA</td>
<td>National Water Act</td>
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## PROJECT DETAILS

### Developer

<table>
<thead>
<tr>
<th>Name of the Developer</th>
<th>SOTOBE PROPERTY GROUP (PTY) LTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Person</td>
<td>Lawrence Maleka (Operations Director)</td>
</tr>
<tr>
<td>Address</td>
<td>7 Mellis Road, Bradenham Hall, Rivonia</td>
</tr>
<tr>
<td>Cell phone Number</td>
<td>011 234 0639/ 066 306 0639</td>
</tr>
<tr>
<td>Email Address</td>
<td><a href="mailto:Lawrence@sotobegroup.co.za">Lawrence@sotobegroup.co.za</a></td>
</tr>
</tbody>
</table>

### Environmental Assessment Practitioner (EAP) Details

<table>
<thead>
<tr>
<th>Name of Consultancy</th>
<th>Emvelo Quality and Environmental Consultant (PTY)Ltd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional affiliation body</td>
<td>IAIAsa</td>
</tr>
<tr>
<td>Name of EAP’s</td>
<td>Phumzile Lembede (BSc Honours: Environmental Management)</td>
</tr>
<tr>
<td></td>
<td>Noxolo Ntuli (Degree: BSoC in Geography and Environmental Management)</td>
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<tr>
<td>Signature</td>
<td></td>
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GLOSSARY OF ITEM

ASPECT: Activities/ products or services that can interact with the environment and can cause either negative or positive impact to the environment.

BIODIVERSITY: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

CONTRACTOR: companies and or individual persons appointed on behalf of the client to undertake activities, as well as their sub-contractors and suppliers.

DEVELOPMENT: the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

DEVELOPMENT FOOTPRINT: any evidence of physical alteration as a result of the undertaking of any activity.

ENVIRONMENTAL CONTROL OFFICER: an individual nominated through the client to be present on site to act on behalf of the client in matters concerning the implementation and day to day monitoring of the EMPr and conditions stipulated by the authorities as prescribed in NEMA.

ENVIRONMENT: in terms of the National Environmental Management Act (NEMA) (No 107 of 1998) (as amended), Environment means the surroundings within which humans exist and that are made up of:

➢ the land, water and atmosphere of the earth;
➢ micro-organisms, plants and animal life;
➢ any part or combination of (i) of (ii) and the interrelationships among and between them;
➢ the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence;
➢ Human health and wellbeing.
ENVIRONMENTAL IMPACT: the change to the environment, whether adverse or beneficial, wholly or partially resulting from an Organisation’s activities, products or services.

ENVIRONMENTAL MANAGEMENT PROGRAMME: a detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive environmental impacts and limiting or preventing negative environmental impacts are implemented during the life-cycle of the project. This EMP focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

GENERAL WASTE LANDFILL SITE: a waste disposal site that is designed, managed, permitted and registered to allow for the disposal of general waste.

GENERAL WASTE: waste that does not pose an immediate hazard or threat to health or the environment, and includes -
- Domestic waste;
- Building and demolition waste;
- Business waste; and
- Inert waste.

HAZARDOUS WASTE: hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste have a detrimental impact on health and the environment.

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

INDIGENOUS VEGETATION: refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

INTERESTED AND AFFECTED PARTY: for the purposes of Chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, an interested and affected party contemplated in Section 24(4) (a)
(v), and which includes (a) any person, group of persons or organization interested in or affected by such operation or activity; and (b) any organ of state that may have jurisdiction over any aspect of the operation or activity.

**MITIGATION**: the measures designed to avoid reduce or remedy adverse impacts.

**POLLUTION**: the National Environmental Management Act, No. 107 of 1998 defined pollution to mean any change in the environment caused by the substances; radioactive or other waves; or noise, odors, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

**REHABILITATION**: rehabilitation is defined as the return of a disturbed area to a state which approximates the state (wherever possible) which it was before disruption.

**WATERCOURSE**: can be a) a river or spring; b) a natural channel or depression in which water flows regularly or intermittently; c) a wetland, lake or dam into which, or from which, water flows; and/or d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

**WATER POLLUTION**: the National Water Act, 36 of 1998 defined water pollution to be the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it less fit for any beneficial purpose for which it may reasonably be expected to be used; or harmful or potentially harmful (a) to the welfare, health or safety of human beings; (b) to any aquatic or non-aquatic organisms; (c) to the resource quality; or (d) to property.
1. INTRODUCTION

Emvelo Quality and Environmental Consultant has been appointed by Sotobe Management (Pty) Ltd to conduct the Basic Assessment (BA) Process in terms of Section 24(5) and Section 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as read with the Environmental Impact Assessment (EIA) Regulations of 04 December 2014 and 2017 amendments. According to the EIA Regulations an EMPr must be attached to the Basic Assessment Report and it must form part of the public participation process, prior to the final BA submission.

2. PURPOSE

The Environmental Management Programme (EMPr) is a detailed plan of the mitigation of measures to minimize negative environmental impacts during the life cycle of the project. The EMPr also contributes to the preparation of the contract documentation by developing the clauses to which the contractor must adhere to, for the protection of the environment. It specifies how the construction of the project is to be carried out and includes the actions required for and not limited to the Planning and Design Phase; to Pre and Post-Construction Phases. This ensures that all the environmental impacts are managed for the duration of project cycle.

An EMPr acts as a flexible, standalone document and it is recommended that it must be implemented during all phases of the development. It is based on the National Environmental Management Act, 1998 (Act No. 107 of 1998) and also bestows a ‘Duty to Care’ on those who cause, have caused or may in future cause pollution or degradation of environment, as per Section 28(1) of NEMA. This document requires that responsibility, accountability and commitment be promoted at all times by the developer and the main contractor including subcontractors.

3. GUIDELINES

Section 24N (2) of NEMA; the Environmental Management Programme must contain information on any proposed management, mitigation, protection or remedial measures that shall be undertaken to address the environmental impacts that have
been identified in a report contemplated in subsection 24(1A), including environmental impacts or objectives in all the phases of the project.

4. OBJECTIVES OF THE EMPr
The following points are subjective to the Environmental Management Programme:

- 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;
- Prevent soil erosion and facilitate re-vegetation of affected areas;
- Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment;
- Adopt the best practical means available to prevent or minimise adverse environmental impacts.
- Ensure that the construction and operational phases of projects undertaken continue within the principles of Integrated Environmental Management;
- Develop waste management practices based on prevention, minimisation, recycling, treatment or disposal of waste;
- Describe all monitoring procedures required to identify impacts on the environment;
- Train employees and contractors with regard to their environmental obligations;
- Provide a pro-active, feasible and practical working tool to enable the measurement and monitoring of environmental performance on site;
5. SCOPE OF THE EMPr
In order to achieve the above objectives, the scope of work must be according to the requirements as stipulated in the EIA regulations, Government Notice No. 38282 of 2014. The EIA regulations stipulate the requirements for the content of draft environmental management programmes. Therefore, the scope of the EMPr must include the following:

- Ensure the safety recommendations are complied with. Definition of environmental management objectives to be realised during the life of project (i.e. construction, operation and decommissioning phases);
- Definition of detailed actions needed to achieve these objectives, including how they will be achieved, by whom, with what monitoring/verification, and to what target or performance level;
- Mechanisms must also be provided to address the changes in the project implementation, emergencies or unexpected events and associated approval processes;
- Clarification of Institutional structures, roles, communication and reporting processes required as part of the implementation of the EMPr;
- Description of the link between EMPr and associated legislated requirements;
- Description of the requirements for record keeping, reporting, review, auditing and updating of the EMPr;

6. ACTIVITIES AND ASPECTS CAUSING IMPACTS
Potential negative impacts that might occur during the construction and operational phases of the proposed project could include the following:

- Solid waste;
- Destruction of natural vegetation;
- Soil erosion;
- Pollution of the nearest water bodies;
- Noise pollution;
- Negative social impact and
- Restriction of access.

7. SENSITIVE AREAS
The proposed development will have minimum negative impacts on the environment provided sensitive areas are respected and correct construction mitigations are followed. There are no primary sensitive areas relating to this particular development. However, a single depression wetland (Lake Menywa) is located approximately 350m north east of the site whilst several ephemeral and artificial drainage lines are present downslope of the site.

The secondary sensitive areas are the soil and the forest on the south western edge of the site. There are no protected trees or plant located on site. The forest (Dunes) comprises indigenous shrubs and trees with some naturalized invasive plants/trees occurring on stabilized dunes.

8. LEGISLATIVE REQUIREMENTS
This EMPr, forms an integral part of the contractual documents, it informs the contractor as to his/her duties in the fulfilment of the project objectives, with reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project.

The contractor should note that obligations imposed by the EMPr are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. If any rights and obligations contained in this document contradict those specified in the standard or project specifications, then the latter will prevail.
It is expected that the contractor is conversant with all legislation pertaining to the environment, including National, Provincial and Local government ordinances, which may be applicable to the contract. Some of the environmental legislation applicable to the construction, upgrading and resealing of roads include, but are not limited to, the following legislation:

- Constitution of South Africa (Act No. 108 of 1996);
- National Environmental Management Act, 1998 (Act No. 107 of 1998);
- National Water Act, 1998 (Act No. 36 of 1998);
- National Environment Management: Air Quality Act (Act No. 39 of 2004);
- National Environment Management: Biodiversity Act (Act No. 10 of 2004);
- National Environment Management Waste Act, 2008 (Act No. 59 of 2008);
- Environmental Conservation Act, 1989 (Act No. 73 of 1989);
- Hazardous Substances Act (Act No. 15 of 1973);
- Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965);
- Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983);
- National Environmental Management: Protected Areas 2003 (Act No. 57 of 2003) and

9. DUTIES OF ROLE PLAYERS

A number of role players will be responsible to ensure responsible environmental practices as described in this report are implemented on the proposed development site, through each of project cycles and throughout the project life span. Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the Project Proponent (Developer), Engineer and Contractor are as detailed below:
9.1 Project Proponent/ (Developer):
- May on the condition of the ENG and/ or ECO through the Project Manager (PM) order the Contractor to suspend any or all works on site if the Contractor or his subcontractor/supplier fails to comply with the environmental specifications;
- Assesses all activities requiring special attention as specified and/or requested by the Engineer (ENG) and/or Environmental Control Officer (ECO) for the duration of the Contract; and
- Ensures that the Contractor conducts all activities in a manner that minimises disturbance to the directly affected residents and public in general, as advised by the ENG and/ or ECO.

9.2 The Engineer (ENG):
- Have an overall responsibility for the implementation of the EMPr;
- Liaise with the PM, Contractor/Operator on the matters concerning the environment;
- Arranges information meetings for and consults with I&AP’s about the impending construction activities;
- Maintains a register of complaints and queries by members of the public at the site office. This register is forwarded to the ECO on monthly basis;
- Enforces and monitors compliance according to the EMPr on site;
- Assesses the Contractor’s environmental performance in consultation with the ECO;
- Ensures the documentation of the state of site prior to the commencement of construction activities, in conjunction with the Contractor;
- Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution of the site;
- Monitor and verify that environmental impacts are kept to a minimum;
- Review and approve construction methods where necessary; and
9.3 The Environmental Control Officer (ECO)

The ECO is appointed by the developer and is responsible for undertaking regular monitoring of the site. The ECO is responsible for conducting the environmental audits, during the construction phase of the project according to the provisions of the Environmental Management Programme and Environmental Authorisation. The following are the duties of the ECO:

- Knows the background of the project and monitor the implementation of the EMPr;
- Advises the Engineer about the interpretation, implementation and enforcement of the EMPr and other environmental related matters;
- Briefs the Contractor about the requirements of the Environmental Authorisation Environmental Specification and/or EMPr, as applicable;
- Monitors and reports on the performance of the contractor/project in terms of environmental compliance to the Engineer or Developer;
- Provides technical advice relating to environmental issues to the Engineer;
- Be fully conversant with all environmental legislation and ensure compliance;
- Ensure that all the environmental specifications contained within the EMPr are adhered to at the site;
- Regularly liaise with the Site Manager on matters relating to the environment;
- Compile monthly reports as to the progress of the construction phases and
- Report of all parties involved (Site Manager, Project Proponent);

9.4 The Contractor (C)

- Complies with all applicable legislation;
- Is conversant with the requirements of the EMPr and briefs staff about the requirements of the same EMPr;
o Ensure sub-contractors/suppliers who are utilised within the context of the contract comply with the environmental requirements of the EMPr. The Contractor will be held responsible for non-compliance on their behalf;

o Supplies the method statement for all activities requiring special attention as specified and/or requested by the Engineer or ECO during the duration of the contract;

o Provides environmental awareness training to staff;

o Bears the costs of any damages/ compensation resulting from non-adherence to the EMPr or written site instructions;

o Conducts all activities in a manner that minimises the disturbance to directly affected residents and the public in general, and foreseeable impacts on the environment;

o Ensures that the Engineer is timeously informed of any foreseeable activities that will require input from the ECO.

**9.5 The Project Proponent/ Project Manager**

o Ensure that the Site Manager/ Engineer and the Contractor are aware of all specifications, legal constraints, standards and procedures pertaining to the project specifically with regard to the environment;

o Ensure that all stipulations within the EMPr are communicated and adhered to by Engineer and the Contractor;

o Monitors the implementation of the EMPr throughout the project by means of regular site visits and meetings;

o Orders the removal of any person(s) and/or equipment in contravention of the specifications of the EMPr;

o Is responsible for overseeing of the construction and activities associated with the development; and

o Receives feedback from the ECO and approves any changes to the EMPr, changes to the design etc.
9.6 Safety, Health and Environmental (SHE) Officer

- Be fully conversant with the EMPr;
- Be fully conversant with all relevant environmental legislation applicable to the project, and ensure compliance with them;
- Convey the contents of this EMPr to the construction site staff and discuss the contents in detail with the Contractor;
- Compilation of Method Statements together with the Principal Contractor that will specify how potential environmental impacts in line with the requirements of the EMPr will be managed, and where relevant, environmental best practices and how they will practically ensure that the objectives of the EMPr are achieved;
- Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMPr;
- Take appropriate action if the specifications contained in the EMPr are not followed;
- Monitor and verify that environmental impacts are kept to a minimum, as far as possible;
- Order the removal from the construction site of any person(s) and/or equipment in contravention of the specifications of the EMPr;
- Report any non-compliance or remedial measures that need to be applied to the appropriate environmental authorities, in line with the requirements of the EMPr.
- Submitting a report at each site meeting which will document all incidents that have occurred during the period before the site meeting;
- Ensuring that the list of transgressions issued by the ECO is available on request; and;
- Maintain an environmental register, which keeps a record of all incidents that occur on the site during construction.

10 PENALTIES

Application of a penalty clause to the Contractor will apply for incidents of non-compliance. The penalty imposed will be per incident and will be deducted from the
Contractor’s monthly payment certificate. Unless stated otherwise in the project specification, the penalties imposed per incident or violation will be:

- Failure to demarcate working areas: R4,000.00.
- Working outside of the demarcated area: R4,000.00.
- Failure to strip topsoil with vegetation (where applicable): R4,000.00.
- Failure to stockpile topsoil correctly: R4,000.00.
- Failure to stockpile materials in designated areas: R2,000.00.
- Failure to provide adequate sanitation for labourers: R2,000.00.
- Failure to erect temporary fences/shade cloth: R2,000.00.
- Failure to provide adequate waste disposal facilities and services: R4,000.00.
- Nuisance to neighbours by Construction staff: R2,000.00.
- Failure to control storm water run-off: R4,000.00.
- Failure to rehabilitate disturbed areas within the specified time-frame: R4,000.00.
- Any contravention of the requirements of DEDTEA: R4,000.00.
- Any other contravention of project specific specification: R2,000.00.
- Any other contravention of particular environmental specification: R2,000.00.

Such fines will be paid to the proponent and will be used in rehabilitation or remediation or landscaping of the development.

11. ENVIRONMENTAL AWARENESS PLAN

11.1 Induction

All full-time staff and contractors will be required to attend induction sessions. Environmental issues, environmental related aspects and environmental related incidents will be discussed during the induction sessions. Induction sessions will be conducted in all the South African official languages relevant to the employees. The induction programme will include the following items but not limited to:
Welcome and registration

- Environmental awareness issues
- Environmental issues and procedures (i.e. procedure for oil spill cleanup, procedure for protection of fauna and flora, procedure for solid waste management, procedure water pollution control).

### 11.2 Environmental Symposiums

Environmental symposiums meeting will be held with the management (contract manager, site manager, municipal representatives) the workers representative and selected supervisors. This will take place in a form of open discussion where the environmental issues and incidents arising from the construction activities will be taken into consideration. The way forward and corrective actions for the findings will be discussed in the meeting.

### 11.3 Training

The training sessions will be held with employees. The training will include the awareness about the environmental aspects related to the employees as well as awareness on environmental aspects around or outside of the construction site. Environmental incidents, reporting procedures will also be discussed.

### 11.4 Community Involvement

Community involvement awareness sessions will involve schools, local communities, local businesses and other stakeholders. This will assist to identify other environmental issues that concern the community and other stakeholders. Lessons will be given about the impact of construction activities to the environment and the importance of environmental protection.

### 11.5 Environmental Communication Strategy

Environmental communication strategy will enable the contractor/ECO to communicate easily with the employees and the community.
11.6 Internal communication
Internal communication will be done through the internal meetings, safety meetings, newsletters, internet and notice board.

11.7 External communication
External communication will be done through the community forums, environmental committees, local newspapers, and environmental reports.

11.8 Emergency response structure
Emergency and incident reporting structure will be designed to handle any emergencies that might arise within the construction site and surroundings. It will consist of the disaster management team and community representatives. Emergency contact numbers and procedures will be communicated with the employees and community.

11.9 Environmental Code of Conduct
One of the objectives of the EMPr is to ensure that all the workforce, contractors, sub-contractors and construction staff have an understanding of environmental issues and potential impacts on site activities.

This environmental code of conduct provides the basic rules that should be strictly adhered to. It is the responsibility of the ECO to ensure that each contractor, sub-contractor and workforce understand and adhere to the Code of Conduct.

All persons are obliged to keep the rules of Code of Conduct

You must study and keep to the rules – ignorance, negligence, recklessness or a general lack of commitment will not be tolerated.

The following are some of the environmental rules:

- Reduce pollution;
- Littering will not be tolerated;
- Put all waste in the correct waste containers provided;
o Use the toilet facilities provided;

o Immediately report to your supervisor when you spill, or notice a hazardous substance being spilled or when you see a vehicle, piece of machinery or container that is leaking fuel, oil or other hazardous substances;

o Do not trespass;

o Never climb over any fence or trespass on private property. You are not allowed to enter neighbouring properties;

o Maintaining the character and visual quality of the area;

o Never deface, draw or cut lettering or any other markings on trees, rocks or buildings in the area;

o Digging, excavation and the erection of any permanent or semi-permanent structures of any kind are prohibited;

o If you spot any litter lying around, please pick it up and throw it in the correct waste container;

o Make sure you are familiar with fire fighting procedures;

o Make sure you are aware of the locations of all fire fighting equipment;

o No fires are allowed outside the confines of the construction camp;

o No burning of waste is allowed;

o Caring for plants and animals;

o Strictly leave all animals alone never tease, catch or set devices to trap or kill any animal;

o Never damage, chop down or remove any tree or shrub (unless you are instructed to do so); and

o Use commercially bought firewood
12. ENVIRONMENTAL MANAGEMENT PROGRAMME
This section indicates the actions required to either prevent and/or minimise the potential impacts on the environment that is associated with the construction of the road.

12.1 Environmental Aspect
This section highlights the various aspects associated with the project i.e. the Applicant /Contractor’s activities that will interact with the environment.

12.2 Mitigation Measures/ Actions Required
This section indicates the actions required to either prevent and/or minimise the potential impacts on the environment that is associated with the installation of the storm water pipelines.

12.3 Responsibility
This section indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr.

12.4 Implementation Period
This section indicates when the actions for that specific aspect must be implemented and/or monitored.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Aspect</th>
<th>Impact</th>
<th>Mitigation Measures</th>
<th>Responsibility</th>
<th>Frequency</th>
</tr>
</thead>
</table>
| Environmental Training| Lack of Environmental knowledge among employees on site                 | Non-compliance towards environmental legislation due to lack of awareness and education. | • All personnel must attend environmental awareness training;  
  • Environmental issues must be communicated to all personnel, stakeholders, interested and affected parties that will be involved in the construction of the project;  
  • The need for clean site (promotion of good housekeeping);  
  • Workers should be properly trained on the conditions of the Environmental Authorization and the contents of the EMPr to ensure environmental compliance. | ECO, Engineer, Contractor       | On-going    |
| Visual and Aesthetic  | Design of different structures and infrastructures on site              | Visual Impact                                                          | • Infrastructure to be built on site should be designed properly. Colour selection and tone must be carefully considered to mitigate visual impacts of the structures to be built. | Developer, Engineer             | Once-off    |
### Planning and Design Phase

<table>
<thead>
<tr>
<th>Activity</th>
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<th>Mitigation Measures</th>
<th>Responsibility</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Footprint/Removal of vegetation</td>
<td>Greening</td>
<td>Climate change</td>
<td><strong>Greening:</strong> The buildings must be designed to suite the carbon footprint reduction. <strong>Water Conservation Demand Management:</strong> Designing for water conservation, efficiency and re-use can be the most effective way.</td>
<td>Developer, Contractor, ECO</td>
<td>On-going</td>
</tr>
</tbody>
</table>

*Table 1: Planning and Design Phase Impacts: The Ridge Upmarket Mixed Development.*

### Pre-Construction Phase

<table>
<thead>
<tr>
<th>Activity</th>
<th>Aspect</th>
<th>Impact</th>
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<th>Responsibility</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Site Establishment</td>
<td>Site Demarcation</td>
<td>Unnecessary removal of vegetation</td>
<td>• Where possible no clearing of vegetation should be done for site establishment and naturalised camping should be utilised where necessary to avoid extensive impacts on the environment; • Where clearing of vegetation cannot be avoided, it must be strictly limited to the exact footprint required for site establishment</td>
<td>Contractor/ Engineer/ SHE Officer</td>
<td>Once-off</td>
</tr>
</tbody>
</table>
## Pre-Construction Phase

<table>
<thead>
<tr>
<th>Activity</th>
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<th>Mitigation Measures</th>
<th>Responsibility</th>
<th>Frequency</th>
</tr>
</thead>
</table>
| Site Establishment  | Site demarcation        | Unnecessary removal of vegetation           | • Ablution facilities should be 100m from workplaces but not closer than 100m from any natural water bodies. There should be enough toilets available to accommodate the workforce;  
• Safe drinking water for human consumption must be available on site;  
• Contractor must supply waste collection bins where such is not available and all solid waste collected must be disposed-off at King Cetshwayo Landfill site. Under no circumstances may solid waste be burnt on site. | Contractor/ Engineer/ SHE Officer | Once-off        |
| Access to site      | Soil erosion            | Loss of top soil                            | • Choice of access routes must take into account minimum disturbance to residents and businesses neighbouring the site. The use of existing tracks to gain access to site is recommended. | Engineer/ Contractor  | Prior to moving to site |
## Pre-Construction Phase

<table>
<thead>
<tr>
<th>Activity</th>
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<th>Mitigation Measures</th>
</tr>
</thead>
</table>
| Access to Site   | Soil erosion          | Loss of top soil           | • The contractor must take into account any limitations identified and recommendations made during the environmental studies when deciding on an access route to the construction site.  
• The local traffic department must be informed at least a week in advance if the traffic in the area will be affected.  
• Relevant traffic signs must be erected in consultation with the local authority warning motorists of construction activities. |
| Compliance       | Environmental Compliance | Environmental degradation, fines | • All persons employed by the developer / their contractors, must abide by the requirements of the EMPr and EA.  
• A fine system must be implemented for negligence or non-compliance resulting in environmental degradation or pollution. The fine system must be agreed to by all parties at the outset of the construction phase. |

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineer/ Contractor</td>
<td>Prior to moving to site</td>
</tr>
<tr>
<td>ECO/ Engineer/ Contractor</td>
<td>On-going</td>
</tr>
<tr>
<td>Activity</td>
<td>Aspect</td>
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<tr>
<td>Compliance</td>
<td>Environmental Compliance</td>
</tr>
</tbody>
</table>
| Construction Camp Set Up | Environmental disturbance     | Too many structures on site             | • Construction camp must not be situated within the 1:100 year flood-line or on slopes greater than 1:3. Careful planning of the construction camp can ensure that time and costs associated with environmental management and rehabilitation is reduced.  
• On site accommodation must not be allowed. The construction camp will therefore generally be comprised of;  
→ Ablution facilities;  
→ Storage areas  
→ Designated first aid area  
→ Eating area | Contractor/ Engineer         | During site setup                       |
<table>
<thead>
<tr>
<th>Activity</th>
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<th>Responsibility</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Environmental disturbance</td>
<td>Too many structures on site</td>
<td>• Emergency assembly point</td>
<td>Engineer, Contractor</td>
<td>During site setup</td>
</tr>
<tr>
<td>Camp Set Up</td>
<td></td>
<td></td>
<td>• Staff lockers</td>
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<td></td>
<td></td>
<td></td>
<td>• Maintenance area</td>
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<td></td>
<td></td>
<td></td>
<td>• Batching plant</td>
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<td>• Cut and fill should be avoided where possible during setup of the construction camp and the size of the construction camp should be minimised (especially where natural vegetation has had to be cleared for its construction)</td>
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<td>• Choice of site for the contractor’s camp requires the engineer’s permission and must take into account location of local residents and ecologically sensitive areas.</td>
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<td>• Adequate parking must be provided for site staff and visitors.</td>
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<td>Activity</td>
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</tr>
<tr>
<td>Road Access</td>
<td>Congestion and traffic</td>
<td>Traffic delays</td>
<td>• The contractor must attend to drainage of the camp site to avoid standing water;</td>
<td>Contractor</td>
<td>During site setup</td>
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<td></td>
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<td>• Visible signs must be installed to warn the road users of the construction activities occurring along the road;</td>
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<td></td>
<td>• Speed limit signs must also be installed to ensure safety of the pedestrians and other road users.</td>
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<tr>
<td>Ablution Facilities</td>
<td>Pollution</td>
<td>Effluent pollution and Water quality degradation on ground water</td>
<td>• Temporary chemical toilets must be provided by the company that has been approved by the engineer. Such toilets must be available for all site staff, both at the camp site, and on site as agreed by all parties.</td>
<td>Engineer, Contractor, ECO, SHE Officer</td>
<td>On-going</td>
</tr>
<tr>
<td>Activity</td>
<td>Aspect</td>
<td>Impact</td>
<td>Mitigation Measures</td>
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</tbody>
</table>
| Ablution Facilities       | Pollution       | Effluent pollution and Water quality degradation on ground water       | • One toilet shall be provided per 1-15 staff members male and female separately on site (as in the Occupational Health and Safety Act no 85 of 1993).  
• Toilets should not be closer than 100m or above the 1:100 year flood line form any natural or manmade water bodies, whichever threshold is the greater. | Engineer, Contractor, ECO, SHE Officer | On-going |
| Establishment of Storage Areas | Safety and security | Theft and crime                                                        | • Storage areas must be designated, demarcated and fenced if necessary.  
• Storage areas must be secure so as to minimise the risk of crime.  
• Material Safety Data Sheets should be readily available on site. | Contractor, SHE Officer. | On-going |

*Table 2: Pre-Construction Phase Impacts: The Ridge Upmarket Mixed-use Development.*
<table>
<thead>
<tr>
<th>Activity</th>
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<th>Impact</th>
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<th>Responsibility</th>
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</tr>
</thead>
</table>
| Source of materials          | Material safety                        | Material theft and vandalism                | • Contractors must prepare a source statement indicating the sources of all materials.  
• Where possible a signed document from the supplier of natural materials should be obtained confirming that they have been obtained in a sustainable manner and in compliance with relevant legislation. | Contractor/Engineer | On-going   |
| Clearance of topsoil         | Disturbance of soil due to clearance of vegetation and topsoil.  
Loss of natural vegetation | Potential soil erosion can take place due to exposed surface | • No topsoil should be cleared unless it is necessary for the establishment of the site facilities;  
• Topsoil to be stripped when soil is dry, to reduce compaction;  
• Compaction of removed topsoil should be avoided;  
• Stormwater must be diverted away from compacted areas. | Contractor         | Once off    |
### Construction Phase

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<tr>
<th>Activity</th>
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</tr>
</thead>
</table>
| Health and Safety: Potential dangerous working conditions | Health and Safety | Potential safety risk to employees | - Equip all employees and/or contractors working on the site with the necessary personal protective equipment;  
- Implement safety induction;  
- Training on relevant machinery. All safety signs as required by the Occupational Health and Safety Act must be visible on site;  
- Ensure that all employees adhere to the Occupational Health and Safety Act;  
- A first aid kit should be provided within the site, this should be fully equipped at all times, site workers should also be trained on basic first aid skills. | SHE Officer/ Contractor/Engineer | On-going |
### Construction Phase

<table>
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<tr>
<th>Activity</th>
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</thead>
</table>
| **Air Quality** | Dust and air quality                | Air pollution through dust and vehicle emissions | - Dampening down of un-surfaced and un-vegetated areas must be done during dusty periods;  
- Vegetation must be retained where possible to reduce dust travel;  
- Proper stockpile management must be implanted to reduce dust;  
- Strict speed limit must be implemented on the dusty road;  
- Any complaints or claims emanating from the lack of dust control must be attended to immediately.                                                                 | Engineer/ ECO/ Contractor | On-going  |
| **Water Quality** | Water Resources                     | Pollution of water resources                     | - Adequate sanitary and ablution facilities must be provided for construction workers;  
- The facilities must be regularly serviced to reduce the risk of surface and groundwater pollution.                                                                                                        | Contractor        | On-going  |
## Construction Phase

<table>
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<tr>
<th>Activity</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Groundwater</td>
<td>Rainwater runoff</td>
<td>Groundwater contamination</td>
<td>• The site must be managed in a manner that prevents pollution of drainage lines, downstream water courses or groundwater due to suspended solids, silt or chemical pollutants;&lt;br&gt;• No cement/concrete mixing on bare soil must be allowed on site. Cement mixers are to be placed on large drip trays to prevent spills.&lt;br&gt;• No servicing of vehicles on site must be allowed.&lt;br&gt;• Generators and fuel supply needed during construction must be placed on drip trays and not bare soil.</td>
<td>Contractor, ECO</td>
<td>On-going</td>
</tr>
<tr>
<td>Waste Management (Storage, Removal and Disposal)</td>
<td>Construction waste, Domestic waste</td>
<td>Land pollution, decreased aesthetic integrity of the site</td>
<td>• All storage must be secured, under lock and key, so as to minimise the risk of crime&lt;br&gt;• The site manager must monitor for site cleanliness to ensure that littering is avoided or minimised for general waste collection.&lt;br&gt;• General waste should be separated from hazardous waste;&lt;br&gt;• Waste separation should be implemented on site, thus waste containers for different waste streams should be provided.</td>
<td>Contractor/SHE Officer, ECO</td>
<td>On-going</td>
</tr>
<tr>
<td>Activity</td>
<td>Aspect</td>
<td>Impact</td>
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</tbody>
</table>
| Waste Management (Storage, Removal and Disposal) | Construction waste, Domestic waste | Land pollution, decreased aesthetic integrity of the site | • No waste should be burnt on site, and fire prevention facilities must be present at all storage facilities at all times;  
• All waste generated should be removed on a daily basis within the construction areas and be disposed-off at a designated areas on site.  
• A fenced off area designated for disposal of general waste and sorting must be provided on site;  
• All construction materials must be stored in a central and secure location with controlled access and an appropriate impermeable surface to minimise leakage and soil contamination. | Contractor/SHE Officer, ECO | On-going  |
### Construction Phase

<table>
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<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Management (Storage, Removal and Disposal)</td>
<td>Construction waste, Domestic waste</td>
<td>Land pollution, decreased aesthetic integrity of the site</td>
<td>• Symbolic safety signs depicting no smoking, no naked flames and danger are to be prominently displayed in and around the fuel storage area.&lt;br&gt;• A designated area for hazardous waste with impermeable surface should be provided</td>
<td>Contractor/SHE Officer, ECO</td>
<td>On-going</td>
</tr>
<tr>
<td>Safety and Security</td>
<td>Security at the construction camp</td>
<td>Theft and vandalism of construction material/ machinery and private property</td>
<td>• No person should enter the site unless authorised to do so by the security.&lt;br&gt;• The site must be secured in order to reduce the opportunity for criminal activity in the locality of the site.</td>
<td>Engineer/Contractor</td>
<td>On-going</td>
</tr>
<tr>
<td>Activity</td>
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<tr>
<td>Socio Economic Aspects</td>
<td>Direct and indirect employment</td>
<td>Socio economic impact</td>
<td>• Preference should be given to the locals for both temporary and permanent employment opportunities.</td>
<td>Contractor /Developer</td>
<td>Prior construction/On-going</td>
</tr>
</tbody>
</table>
| Noise Impact           | Local Business, and domestic animals | Increased noise disturbances/nuisance to surrounding communities | • All operations during the construction phase must be compliant with the requirements of the Occupational Health and Safety Act (Act No 85 of 1993);  
• Excavation activities can be conducted during the daylight hours only, no excavation should be allowed before or after working hours.  
• Training and environmental awareness must be provided to the workers about the noise pollution.  
• Noise dampening mechanisms must be installed on the moving machinery. | Contractor       | On-going                                       |
<table>
<thead>
<tr>
<th>Construction Phase</th>
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<tbody>
<tr>
<td>Activity</td>
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</tbody>
</table>
| Noise Impact | Local Business, and domestic animals | Increased noise disturbances/ nuisance to surrounding communities | • Ear plugs must be provided to the workers.  
• Surrounding businesses, hotels and people must be made aware through signage of nuisance activities such as noise impacts.  
• The use of signs should made on days of working with nuisance machinery. | Contractor | On-going |
| Visual aesthetics | Overall site cleanliness | Residents passing by the site | • Construction camps and stockyards should be located out of the visual field of highly sensitive visual receptors such as residents;  
• The construction sites and camps should be kept neat, clean and organised in order to portray a general tidy appearance;  
• Rubble and other building litter should be removed as soon as possible or placed in a container in order to keep the construction site clean and free from additional unsightly elements. | Contractor/ ECO/SHE Officer | On-going |
<table>
<thead>
<tr>
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</table>
| Stockpile Management        | Environmental degradation           | Site contamination       | • Stockpiles must not exceed 2m in height unless otherwise permitted by the applicant, especially if exposed to windy conditions or heavy rain;  
• Stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding;  
• Stockpiles must be covered either by tarpaulin or planting of grass, depending on the duration of the project;  
• Soil stockpiles, storage areas and site camp should be placed at least 50m from the edge of delineated wetlands.                                                                                                                      | Contractor               | On-going  |
| Removal of indigenous vegetation | Vegetation removal                  | Loss of vegetation       | • Vegetation must be removed just before construction, where construction will take place in intervals and not all at once.  
• The site should be fenced off for the duration of the construction phase to prevent domestic animals from entering the site and being injured.                                                                                                                                  | Contractor, ECO, SHE Officer | On-going  |
<table>
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<tr>
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</tr>
</thead>
</table>
| Removal of indigenous vegetation | Vegetation removal | Loss of vegetation      | • No fauna encountered on site may be intentionally harmed or killed.  
• Where necessary, the disturbed areas should be re-vegetated with plants that attract seed eating and nectar feeding birds for pollination and re-vegetation.  
• Keep the loss of forest vegetation as close as possible to the footprint of the development, restrict dumping of soil and trampling to outside of an established buffer zone surrounding the forest;  
• All open excavations must be securely fenced or barricaded and checked on a regular basis for trapped fauna.  
• The construction footprints should be demarcated with chevron tape/barricaded.  
• Vegetation disturbance must be limited to the demarcated construction area. | Contractor, ECO, SHE Officer             | On-going    |
<table>
<thead>
<tr>
<th>Activity</th>
<th>Aspect</th>
<th>Impact</th>
<th>Mitigation Measure</th>
<th>Responsibility</th>
<th>Frequency</th>
</tr>
</thead>
</table>
| Soil and Geology              | Soil degradation     | Alteration of the natural soil profile              | - The dense vegetation on site plays a role in stabilizing site, therefore, disturbance should be kept as low as possible  
- When building new structures on site it is important that the stability is looked at. Stabilizing solutions like retaining structures must be considered.  
- Within loose sandy aeolian sediments, Kosi Bay formation sands and colluvium sands, excavations greater than 1.2m where not battered back should be suitably shored  
- All cut embankments should be protected against surface erosion by planting indigenous vegetation after construction.                                                                 | Contractor, Engineer    | During Construction |
| Complaints and Environmental  | New development      | Direct and Indirect impacts                         | - Complaints received from the community and other I&Aps must be registered and recorded by the ECO and also brought to the attention of the contractor.                                                            | Contractor, ECO          | On-going           |
## Construction Phase

<table>
<thead>
<tr>
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<th>Frequency</th>
</tr>
</thead>
</table>
| Complaints and Environmental Incident Register| New development      | Direct and Indirect impacts     | • Both parties will respond accordingly.  
• The following information must be recorded in the case of any complaint/ incident:  
  ➔ Date, Time and nature of complaint;  
  ➔ Response and investigation undertake;  
  ➔ Actions taken and by whom.  
• All complaints must be invested and the response should be given to the complaint within 7 days of receipt. | Contractor, ECO | On-going               |
| Stormwater Management                          | New Development      | Pollution and soil erosion      | • The contractor must ensure compliance with the stormwater management plan which must include regular inspection of stormwater control related to infrastructure to avoid blockages and monitor potentially malfunctioning structures.  
• The contractor must ensure that wastewater and sewage is being correctly and safely managed onsite to avoid discharge into drainage | Contractor      | On-going               |
### Table 3: Construction Phase Impacts

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<thead>
<tr>
<th>Activity</th>
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<th>Mitigation Measures</th>
<th>Responsibility</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stormwater Management</td>
<td>New Development</td>
<td>Pollution and soil erosion</td>
<td>• Ensure compliance with the alien plant management plan;</td>
<td>Contractor</td>
<td>On-going</td>
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<td>• Excess water or rainwater retention facility can be developed to assist in recycling and re-using of water.</td>
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<td>• Existing vegetation must be retained as far as possible to minimise erosion problem.</td>
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<td>• Visual inspections must be done on a regular basis with regard to the stability of water control structures and erosion</td>
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<tr>
<td>Activity</td>
<td>Aspect</td>
<td>Impact</td>
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</tr>
</tbody>
</table>
| Waste Management    | Waste           | Pollution        | • All waste should be collected and appropriately disposed of at the King Cetshwayo landfill site.  
• All remaining maintenance materials, building rubble and waste are to be removed from the site;  
• Adequate waste bins must be provided in and around the site clearly labelled for different types of waste. | Engineer, Developer     | Once-off   |
| Traffic Management  | New Development | Traffic Congestion | • Sidewalks are recommended along Andrews Lane and Launder Lane or where necessary;  
• Pedestrian crossing is recommended at the shopping centre access near the recommended public transport laybys to provide safe crossing opportunities for pedestrians walking to and from the laybys. | Developer, Engineer     | Once-off   |
### Operational Phase

<table>
<thead>
<tr>
<th>Activity</th>
<th>Aspect</th>
<th>Impact</th>
<th>Mitigation Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Footprint</td>
<td>Materials and equipment/ Vegetated rooftops</td>
<td>Climate change</td>
<td><strong>Greening</strong>&lt;br&gt;Planting indigenous plants on rooftops and integrating the natural environment into the development as much as possible will help to create oxygen and help reduce carbon footprint within the buildings.</td>
</tr>
</tbody>
</table>

**Materials and Equipments**<br>Use windows and skylight as they provide with natural lighting i.e. glazed or double-paned windows as they provide insulation.<br>- The use of roof mounted turbines or solar panels is recommended to reduce using the municipal energy sources.

<table>
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<th>Responsibility</th>
<th>Frequency</th>
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</thead>
</table>

**Table 4: Operational Phase Impacts: The Ridge Upmarket Mixed-use Development.**

The operational phase of the proposed development will solely rely on the maintenance to be carried out by the developer.
13. CONCLUSION AND RECOMMENDATIONS

This Environmental Management Programme (EMPr) must be used as an on-site reference document during all phases of this development, and auditing must take place in order to monitor compliance with the EMPr.

Parties responsible for transgression of this EMPr must be held liable for any rehabilitation that may be required. Parties found liable for environmental degradation through irresponsible behaviour, negligence and or non-compliance with the EMPr must receive penalties such as an order to cease activities, withdrawal of the authorisation and/or civil or criminal proceedings to enforce compliance with the environmental authorisation and this EMPr.

This EMPr is prepared in terms of the well-recognised integrated environmental management principles and some occupational health and safety principles. It is based on the strengths of the information prepared at the time. It must therefore be a living document that is updated and revised based on challenges which arise on site during monitoring.