

# Environmental Management Programme (EMPr)

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**DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE PROPOSED  
REGENT ESTATE DEVELOPMENT, ETHEKWINI MUNICIPALITY, KZN.**

**A Project of MET Developments (Pty) Ltd.**

**14<sup>th</sup> August 2020**

# **DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED REGENT ESTATE DEVELOPMENT, ETHEKWINI MUNICIPALITY, KZN**

**14 AUGUST 2020**

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**Compiled and Authorised by:**

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## **GLOSSARY OF TERMS**

### ***Audit***

A verification process that is used to obtain information regarding the implementation of the EMPr. It is an objective tool used to make improvements at the workplace.

### ***Biophysical Environment***

All aspects of the natural environment including physical features such as watercourses, groundwater and soils as well as the biological features such as plants and animals.

### ***Bunding***

An impervious containment system for potential spillages from tanks / containers stored on site. The banded area must have a capacity greater than 110% of the total tankage contained. The bunding must be constructed of a material impermeable and resistant to the stored material.

### ***Client***

MET Developments (Pty) Ltd. is the client.

### ***Construction Activity***

A construction activity is any action taken by the Client, a contractor, his sub-contractors, suppliers or personnel during a construction process.

### ***Contractor***

Persons or companies appointed on behalf of the Client to undertake construction or operational activities, as well as their sub-contractors and suppliers.

### ***Construction camp***

The area allocated for the establishment of equipment, repair area, ablution facilities, lie down and rest areas, etc. It also serves as the central point for the storage of fuel, construction material and contractor offices.

### ***Decommissioning***

In relation to the development and its associated buildings, structures and facilities, means the planning for and management and remediation of the closure/cessation of the development.

### ***Environmental Authorisation***

Environmental Authorisation obtained in terms of the National Environmental Management Act (NEMA), Act 108 of 1998, and the associated EIA Regulations.

### ***Environmental Control Officer (ECO)***

Individual appointed by the Client and who is responsible for monitoring compliance with the implementation of the EMPr, permits and licenses; ensuring liaison between MET Developments, the contractor and Authorities; and reporting on the verified compliance with the EMPr.

### ***Environmental Site Officer (ESO)***

An environmentally knowledgeable or qualified person nominated by the appointed contractor who will ensure the day-to-day implementation of the EMPr by contractors.

### ***Environmental Management Programme (EMPr)***

A plan or programme that seeks to achieve a required end state and describes how activities, that have or could have an adverse impact on the environment, will be mitigated, controlled and monitored. The EMPr provides the environmental requirements during the planning, operation and construction phases to the Client and any agent, consultant, contractor and sub-contractors acting on behalf of the Client to ensure that environmental aspects are addressed adequately to prevent or minimise environmental impacts (pollution or degradation) as a result of the activities or proposed activities at the proposed Regent Estate Development site. The EMPr also provides for general instructions that should be included in a contract

document for any planning and construction phases of any of the related construction activities under the responsibility of MET Developments. The EMPr also details the organisational structure required to ensure the effective implementation of the EMPr and measures to monitor and improve the application of the EMPr.

### ***Environment***

The environment means the surroundings within which humans exist and that could be made up of water, air, soil, sand, plants and animals.

### ***Environmental Aspect***

An environmental aspect is any component of a contractor's construction activity that is likely to interact with and on the environment.

### ***Environmental Impact***

An impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of an activity. An impact may be the direct or indirect consequence of a construction, operational or decommissioning activity.

### ***Environmental Consultant***

An independent consultant that is appointed by the Client to compile an Environmental Management Programme and to undertake environmental audits or Control Officer Functions.

### ***Environmental Specifications***

Instructions and guidelines for specific activities designed to help prevent, reduce and/or control the potential environmental implications of these activities during the operational, construction or decommissioning/closure phases of the facilities.

### ***Fauna***

Any and all animals identified within or outside of the operational or project area. Animals must not be harmed in any way.

### ***Flora***

All species of plants that are found within a specific region, habitat, or time period within or outside of the operational or project areas.

### ***Hazardous Substance***

Any substance that poses a significant risk to health and safety, property or the environment. These substances have been classified under the SABS Code 0228: *'The Identification and Classification of Dangerous Goods and Substances'*. Hazardous substances/materials are those that are potentially: poisonous, flammable, carcinogenic or toxic.

Some examples of hazardous substances / materials include:

- a. Diesel, Petroleum, Oil, Bituminous products;
- b. Cement;
- c. Chemicals such as solvent based acids, alkalines;
- d. Lubricants such as oil and greases;
- e. Pesticides, Herbicides; and
- f. LP (Liquefied Petroleum) gas.

### ***Hazardous Waste Landfill Site***

A waste disposal site that is designed, managed and permitted by DWS or DEA to allow for the disposal of hazardous waste.

### ***Incident***

The occurrence of a pollution or degradation event that will have direct or indirect effects on the environment e.g. surface water, groundwater, soils, ambient air, flora, fauna and humans.

**Landowner**

The individual, Company, Entity, Tribal Authority, Local Municipality or District Municipality that legally owns the land. In this case, the Landowner is MET Developments.

**Mitigation measures**

Mitigation seeks to address poor or inadequate practices, procedures, systems and / or management measures by the implementation of preventative and corrective measures to reduce, limit, and eliminate adverse or negative environmental impacts or improve the positive aspects.

**Project**

This refers to any new construction activities associated with the proposed Regent Estate development.

**Principal Agent (PA)**

Principal Agent or Representative of the Client, responsible for overall management of the construction phase of a project, operational phase or decommissioning/closure of the Proposed Regent Estate Development. Duties also include the management of all Contractors.

**Record of Decision (R.o.D)**

NEMA (National Environment Management Act) states that before certain listed development activities can be undertaken, an EIA must be conducted and Environmental Authorisation obtained. The Department of Environmental Affairs and Development Planning is responsible for evaluating applications in terms of the EIA Regulations. This written decision is now called either an Environmental Authorisation or Environmental Refusal and is listed in a Record of Decision (RoD)

**Rehabilitation**

Rehabilitation is defined as the return of a disturbed area, feature or structure to a state that approximates to the state (where possible) that it was before disruption, or to an improved state.

**Remediation**

The management of a contaminated site to prevent, minimise, or mitigate harm to human health or the environment

**Servitude**

A right which eThekweni Municipality holds over another property for a right of passage, pipeline or storm water servitude. The servitude is registered against the title deeds and binding on successive owners in perpetuity.

**Social Environment**

Persons likely to be directly or indirectly affected by construction activities during a project, operational activities, or activities during the decommissioning phase.

**Solid Waste**

Means all solid waste, including domestic and office waste (food, paper, plastic), waste from operations e.g. empty chemical containers, dried sludge as well as waste from the construction and / or decommissioning phases, chemical waste, excess cement/concrete, inert building rubble, packaging, timber, tins and cans.

**Sustainable development / sustainability**

The integration of social, economic and environmental factors into planning, implementation and decision-making, to ensure that development serves present and future generations.

**Topsoil**

The layer of soil covering the earth which provides a sustainable environment for the germination of seeds, allows water penetration, and is a source of micro-organisms and plant nutrients.

***Watercourse***

A river or spring; a natural channel or depression in which water flows regularly or intermittently; a wetland, lake or dam into which, or from which, water flows; and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse.

***Waste***

Any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether such substance, material or object can be re-used, recycled or recovered.

***Workforce***

The entire project team including people employed by the Client or the contractor, persons involved in activities related to a project, persons present at or visiting construction areas (including permanent contractors and casual labour), personnel in charge of- or tasked with maintenance of the Proposed Regent Estate Development and its operations.



## **GLOSSARY OF ACRONYMS**

DAFF:	Department of Agriculture, Forestry and Fisheries
DWS:	Department of Water and Sanitation
DOT:	KZN Department of Transport
EDTEA:	Department of Economic Development, Tourism and Environmental Affairs
EA:	Environmental Authorisation
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment
EMPr:	Environmental Management Programme
ESO:	Environmental Site Officer
HSE:	Health, Safety and Environment.
NEMA:	National Environmental Management Act
NWA:	National Water Act
PA:	Principal Agent
SEMA:	Specific Environmental Management Acts
PE:	Project Engineer
PM:	Project Manager

## 1. INTRODUCTION

An “Environmental Management Programme” (EMPr) is a plan or programme that sets out guidelines that describe how activities that have or could have an adverse impact on the environment, will be mitigated, controlled, monitored and subsequently achieve a desired operational and/or end state. The EMPr addresses the environmental impacts during the design, construction, operational and decommissioning/closure phases of a project. The purpose of an EMPr provides for preventative, corrective and best practice measures to ensure that activities related to construction, operation and/or closure of a facility and associated activities are done in an environmentally responsible way and is sustainable.

The EMPr is a dynamic document that should be continually updated, as and when required. This EMPr prepared by Wallace and Green concerns the implementation of an Environmental Management Programme and mitigation measures related to the construction of the proposed Regent Estate development. It sets out conditions for managing environmental impacts during the construction and operational phases of the development.

Due consideration has been given to the development in terms of the planning, construction, operational phases whilst considering the environment and needs of interested and affected parties. Where relevant, rehabilitation and closure aspects have also been considered and addressed.

Due regard must be given to environmental management during the entire lifecycle stage of a project. Environmental specifications, conditions and/or recommendations are provided to ensure:

- Minimising the extent of environmental impact during the life of the project, commencing from planning through to closure.
- Ensuring appropriate rehabilitation of areas affected by construction and operation.
- Preventing and remediating long term environmental degradation.

### 1.1. BACKGROUND INFORMATION

The property is 7.6Ha in extent and is located in Ward 92 of the eThekweni Metropolitan. The site is boarded by the M19 to the South, vacant land to the West, residential and vacant land to the East and Aller River and Clermont Township to the North. The property is currently vacant and is accessed from Glengarry Place. There are three electrical pylons that are located on the western section of the site. There are walkways and evidence of subsistence crop cultivation that is taking place on a section of the site.

The Proposed Development entails the following:

- Construction of 309 two-bedroom units (13 blocks will consist of 18 units each and 5 blocks will consist of 15 units each);
- Internal roads and parking bays;
- Water Supply Infrastructure which includes pipelines and a steel 400kl tank together with a pump station;
- Stormwater Infrastructure which includes pipelines and stormwater retention ponds;
- Sewer Infrastructure which includes pipelines, manholes and a low volume on site package plant.

**Table 1-1: Listed and Specified Activities Triggered and Being Applied For**

Listed Activity	Description
<b>Listing Notice 1 (Basic Assessment)</b>	
Activity 27	The Development of buildings and infrastructure will result in the clearance of more than 1 hectare of indigenous vegetation.
<b>Listing Notice 3 (Basic Assessment)</b>	
Activity 4	The proposed development will entail constructing roads that are 7.5m in width with road reserves less than 13.5m within a CBA and DMOSS.
Activity 12	The proposed development will entail the removal of indigenous vegetation within a CBA and DMOSS.
Activity 14	The proposed development will entail the construction of a sewer outfall which may have a footprint of 10sqm that is within 32m of the Aller River, within a CBA and DMOSS.

Please see figure below depicting the location of the proposed development.



**Figure 1-1: Site boundary of the Proposed Regent Estate Development**

## 1.2. SCOPE OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

This document describes the role of the EMPr in Environmental Impact Assessment (EIA) and planning for ecologically sustainable development within the framework of existing legislation and environmental management policies.

The EMPr will be used as a binding document between MET Developments and appointed contractors, as well as all other persons involved in the execution of activities related to the construction of the Proposed Regent Estate Development. These conditions must be adhered to for the duration of the construction, post-construction and operation phases.

This EMPr addresses the following phases of the development:

### (a) The Construction Phase (including Planning and Pre-construction)

The planning phase is the ideal opportunity to incorporate pro-active measures to ensure that environmental impacts are avoided and mitigated from the outset. Proper planning during this phase can ensure that the likelihood of certain impacts taking place is minimised. The majority of the impacts which may occur during the construction phase will have immediate effect (e.g. noise, dust and pollution / waste generation). If the site is monitored on a continual basis during the construction phase, it is possible to identify these impacts as they occur. These impacts will then be mitigated through the implementation of the measures described in the EMPr.

### (b) Post Construction (including rehabilitation) and Operational Phases (including ongoing maintenance)

Following the construction of the Proposed Regent Estate Development, rehabilitation measures must be followed to minimise the impacts going forward. The impacts, which are anticipated during the operational phase are deemed to be less significant and are those impacts which may result from inappropriate management of the development, operational failure or maintenance backlogs. By taking pro-active measures during the operation phase of the development, potential environmental impacts emanating during the operational phase will be minimised.

## 1.3. OBJECTIVES OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The EMPr plays a vital role in the implementation of consistent and continued environmental management for the duration of a project life cycle.

### **Specifically, the EMPr:**

- Ensures compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and all related legislation thereof.
- Ensures that there is sufficient allocation of resources on the project budget so that the scale of EMPr-related activities is consistent with the significance of project impacts.
- Ensures compliance with legislation and regulations which may be national, provincial or local.
- Outlines the functions and responsibilities of responsible persons.
- Verifies environmental performance through information on impacts as they occur.
- Outlines mitigation measures and environmental specifications which are required to be implemented for all phases of a project in order to minimise the extent of environmental impacts, and to manage environmental impacts associated with the proposed project.
- Creates awareness and specifies measures to prevent long-term or permanent environmental damage or degradation.
- Establishes monitoring methods for environmental management practices for construction of the development.
- Ensures that all health and safety regulations are adhered to.
- Proposes methods to monitor compliance with the EMPr and subsequent reporting.
- Specifies timeframes within which measures set out in the EMPr must be implemented.
- Encourages good management practices through planning and commitment to environmental issues;
- Defines how the management of activities and their impact on the environment is to be reported and how performance should be evaluated;



- Provides practical environmental conditions / requirements to:
  - Minimise disturbance of the natural environment;
  - Ensure water resource protection;
  - Prevent or minimise all forms of pollution;
  - Protect indigenous flora and fauna;
  - Prevent soil erosion and facilitate the re-vegetation of affected areas;
  - Ensure the maintenance of newly vegetated areas;
  - Restrict noise disturbance;
  - Ensure compliance with all applicable laws, regulations, standards and guidelines for the protection of the environment; and
  - Provide for the best practical means available to prevent or minimise adverse environmental impacts.
- Develops waste management practices based on prevention, minimisation, recycling, treatment or disposal of waste;
- Defines the arrangements that will be put in place to ensure that the mitigation measures are implemented by including recommendations of the roles and responsibilities of the project proponent, environmental management team and contractors;
- Describes all monitoring procedures required to identify impacts on the environment; and
- Trains the Owner of the project, its employees and contractors with regard to their environmental obligations.
- Provides an environmental awareness plan.
- Responds to changes in project implementation not considered in the EIA.
- Responds to unforeseen events.
- Provides feedback for continual improvement in environmental performance.

#### 1.4. AUTHORS OF THE EMPr

##### **Mr. Kushela Naidoo – Certified Environmental Assessment Practitioner (EAP) | Master's Environmental Science.**

Kushela Naidoo is an Environmental Specialist and the Managing Director of Wallace and Green specialising in Environmental Impact Assessments (EIA) and Water Use Licences (WUL) for Mixed Use Developments, road infrastructure and Industrial projects as well as waste, water and coastal management projects. His duties are to ensure professional service underpinned by strong ethics and a well-developed team; Manage and execute sustainability projects to client and authority requirements; Implement business development and marketing (local, national and international) and ensure the management of all projects and professional execution thereof by employees. He also sits on the Environmental Assessment Practitioners Association of South Africa (EAPASA) panel of assessors. Kushela has previously worked as a Technical Director with Triplo4 Sustainable Solutions and prior to that as an Environmental Manager & Project Principle for Royal HaskoningDHV where he also served as the acting Regional Environmental Manager for KZN. This builds on a broad development/research background, which has made him particularly flexible. His current experience includes more than 14 years of environmental consulting in the field of Impact Assessment, Authorisation Applications and Licences, with a focus on legislative requirements.

##### **Mrs. Simitha Koobair – Certified Environmental Assessment Practitioner (EAP) | Honours in Geography**

Simitha Koobair is an Environmental Consultant with 7 years of working experience. She has undertaken a number of Basic Assessments, Scoping and Environmental Impact Reports, Environmental Management Plans, Preliminary Environmental Assessments and Water Use License Applications. She has attained practical experience in the field of spatial planning, with projects such as reviewing of Spatial Development Frameworks, Integrated Development Plans, Strategic Environmental Assessments, District Growth and Development Plans as well as contributing to Land Use Management Schemes and Spatial Planning Land Use Management Applications. Simitha has also used GIS for many of the projects she worked on, which

has allowed her to refine and update her GIS skills. Simitha used GIS for identifying, analysing, interpreting and displaying of environmentally sensitive areas such as wetlands, protected areas and critical biodiversity areas. Simitha has previously worked at K2M Environmental as an Environmental Assessment Practitioner, where she gained most of her EIA experience. She has also worked as the Department of Water and Sanitation as an Environmental Technician and at the South Durban Community Environmental Alliance (SDCEA) as a Project Officer (Climate Change and Energy).

#### **Mr. Rivash Pahlad – Master’s Environmental Science**

Rivash Pahlad is an Environmental Compliance Officer and Environmental Assessment Practitioner at Wallace and Green, who holds a Master’s Degree in the School of Agriculture, Earth and Environmental Science (specialising in Biogeography and Ecology, i.e. Nature watching; particularly dealing with broad groups that include all amniotes, i.e. bird, mammal and reptile species), with two years of Environmental consulting experience. Rivash has been responsible for conducting and compiling Environmental Impact Assessments, Environmental Management Programmes, as well as Environmental Compliance Audits on a variety of Road Infrastructure, Bulk-Water as well as Mixed-Use developments on High-Profile Projects in several District Municipalities. He is also registered with IAIAAs (International Association for Impact Assessment).

Wallace and Green (Pty) Ltd., is an enterprise of independent environmental consultants, providing a wide range of environmental consulting services to both the private and public sectors throughout South Africa. The Company is a certified Level 1 B-BBEE company with 100% black ownership of which 60% is black woman owned. Not only are we empowered from an ownership point of view, but our current staff complement also reflects our policies of empowerment and skills transfer, with more than 90% of our staff classified as historically disadvantaged.

Wallace and Green recognises that the ability to develop and implement sustainable solutions to complex environmental problems often requires the collaboration of specialists. For each project, we assemble an experienced team of professionals with local knowledge, experience and expertise in disciplines necessary to address the specific challenges of the project at hand.

Wallace and Green recognises the value of academic development and the regulation of professional associations.

Wallace and Green personnel are professionally registered & members of the following associations:

- South African Council for Natural Scientific Professions (SACNASP);
- Environmental Assessment Practitioners Association of South Africa (EAPASA);
- Water Institute of South Africa (WISA);
- Institute of Waste Management of South Africa (IWMSA);
- Green Building Council of South Africa (GBCSA)
- Project Management Institute of South Africa (PMI SA)
- International Association for Impact Assessment South Africa (IAIA SA)

## 1.5. RESPONSIBILITY FOR ENVIRONMENTAL MANAGEMENT WITHIN ETHEKWINI MUNICIPALITY

The Management Authority responsible for environmental authorisation and compliance within the eThekweni Municipality is the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA).

**Table 1-2: Details of the Project Owner**

Name of Owner	MET Developments		
Contact Person	Mr. Moegamat Behardien		
Telephone Number	(031) 266 2483	Fax Number	+27 (86) 725-9433
Mobile number	+27 (083) 645 3870	Email	<a href="mailto:moegamat@metbuilders.co.za">moegamat@metbuilders.co.za</a>

### INDEPENDENT ENVIRONMENTAL ASSESSMENT PRACTITIONER

Wallace and Green was appointed by MET Developments as Independent Environmental Assessment Practitioner (EAP) to compile the EMP. Table 1-3 indicates the details of the EAP:

**Table 1-3: Environmental Assessment Practitioner**

Name of Consultancy	Wallace and Green (Pty) Ltd		
Contact Person	Ms Simitha Koobair		
Telephone Number	(031) 563 4466	Fax Number	086 6138 535
Mobile number	+27 (0)83 779 8119	Email	<a href="mailto:simitha@wallaceandgreen.co.za">simitha@wallaceandgreen.co.za</a>

The Competent Authority responsible for environmental authorisation and compliance within the eThekweni Municipality is the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA).

**Table 1-4 : KZN EDTEA Environmental Authority Contact Detail**

Name of Authority	Department of Economic Development, Tourism and Environmental Affairs		
Contact Person	Ms Natasha Brijlal		
Telephone Number	(031) 350 3015	Fax Number	
Mobile number	+27 (0) 79 898 0491	Email	<a href="mailto:Natasha.Brijlal@kznedtea.gov.za">Natasha.Brijlal@kznedtea.gov.za</a>

## 1.6. STRUCTURE OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

Section 1 is a brief introduction and background to the project and outlines the scope as well as objectives of the EMP. Section 2 reviews the legislation, guidelines and necessary documentation relevant to achieving an environmentally sustainable project. Section 3 outlines the methodology of the EMP. Section 4 explains management and compliance monitoring by providing detailed descriptions of organisational structures, roles and responsibilities, monitoring, reporting procedures and non-compliance. Section 5 provides a summary of activities causing impacts. Section 6 presents a comprehensive environmental management programme.

## 2. APPLICABLE LEGISLATION, GUIDELINES AND DOCUMENTATION

This document describes the role of the EMPr to any existing environmental authorisations, permits, licenses and EMP's in environmental assessment and planning for ecologically sustainable development within the framework of existing legislation and environmental management policies.

South Africa is a constitutional democracy, which means the constitution and Bill of Rights are the supreme law. Our Constitution guarantees certain human rights and is one of the most progressive in the world. In line with a constitutional democracy everyone has responsibilities.

In terms of The Constitution of the Republic of South Africa (Act No. 108 of 1996) everyone has the right:

- to clean water;
- to an environment that is not harmful to their health or well-being and to have the environment protected, for benefit of present and future generations, through reasonable legislation and other measures that prevent pollution and ecological degradation, promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The overarching legislative framework that governs all environmental activities is the National Environmental Management Act (No 107 of 1998). NEMA aims to provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith. NEMA can help deal with problems at a municipal level and enables one to determine whether proper Integrated Environmental Management (IEM) procedures have been followed.

Accompanying NEMA is a set of Specific Environmental Management Acts (SEMA's). Known by the abbreviation of SEMA's, Specific Environmental Management Acts, all fall under the auspices of the overarching National Environmental Management Act (NEMA). To date five SEMA's have been promulgated, with the most recent one being Waste Act in 2008. The full list of SEMA's is:

1. National Environmental Management: Protected Areas Act (57 of 2003), known as the NEM:PAA
2. National Environmental Management: Biodiversity Act (10 of 2004), known as the NEM:BA
3. National Environmental Management: Air Quality Act (39 of 2004), known as the NEM:AQA
4. National Environmental Management: Integrated Coastal Management Act (24 of 2008), known as the NEM:ICM
5. National Environmental Management: Waste Act (59 of 2008), known as the NEM:WA

The Environmental Impact Assessment Regulations were published in Government Notice R982 to R985 (December 2014), and promulgated in terms of Chapter 5 of the National Environmental Management Act. The purpose of the regulations is to regulate the procedure and criteria relating to the submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities in order to avoid detrimental impacts on the environment, or where it cannot be avoided, ensure mitigation and management of impacts to acceptable levels, and to optimise positive environmental impacts, and for matters pertaining thereto.

Section 28 of NEMA (Duty of care and remediation of environmental damage) states that every person who causes, has caused or may cause significant pollution or degradation to the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.

This EMPr must be read in conjunction with any Environmental Authorisation (once issued) for the proposed development sites and any other relevant documentation by provincial government and national government. These could include but not be limited to: a general water use license, waste management license, conditions for establishment and health permits for sanitation from provincial health officials.



## 2.1. APPLICABLE ENVIRONMENTAL LEGISLATION

The following Environmental legislation was considered, in the evaluation of the activities and development of the EMPr. It must be noted that only some sections of Acts have been listed below, these were deemed pertinent and specific to the scope of this EMPr. These Acts must always be considered and adhered to in their entirety.

The list of applicable legislation and permits provided is intended to serve as a guideline only and is not exhaustive.

**Table 2-1: Applicable Environmental Legislation**

Legislation	Section	Relates to
The Constitution (No 108 of 1996)	Chapter 2	Bill of Rights.
	Section 24	Environmental rights.
National Environmental Management Act (No 107 of 1998 [as amended])	Section 2	Defines the strategic environmental management goals and objectives of the government. Applies through-out the Republic to the actions of all organs of state that may significantly affect the environment.
	Section 24	Provides for the prohibition, restriction and control of activities which are likely to have a detrimental effect on the environment.
	Section 28	The developer has a general duty to care for the environment and to institute such measures as may be needed to demonstrate such care.
	Section 30	Deals with the control of emergency incidents, including the different types of incidents, persons responsible for the incidents and reporting procedures to the relevant authority.
National Environmental Management: Waste Act (No 59 of 2008)		Provides for specific waste management measures and the remediation of contaminated land.
		Regulations for waste management licensee activities
National Environmental Management: Biodiversity Act (No 10 of 2004)  Threatened or protected species (GN 388)  Lists of species that are threatened or protected (GN 389)  Alien and invasive species regulations (GNR 506) Publication of exempted alien species (GNR 509) Publication of National list		Provides for the management and conservation of biodiversity, protection of species and ecosystems, and sustainable use of indigenous biological resources – provisions re alien and invasive species?

of invasive species (GNR 507)		
Publication of prohibited alien species (GNR 508)		
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)		The objects of this Act are to provide for the conservation of the natural agricultural resources of the Republic by • the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants. Section 5 details measures for the prohibition of the spreading of weeds.
National Environmental Management: Air Quality Act (No 39 of 2004)	Section 32	Control of dust
	Section 34	Control of noise
	Section 35	Control of offensive odours
National Heritage Resources Act (No 25 of 1999) and regulations	Section 34	No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.
	Section 35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site.
	Section 36	No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.
	Section 38	This section provides for Heritage Impact Assessments (HIAs), which are not already covered under the ECA. Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during the HIA process. The Heritage Impact Assessment (HIA) will be approved by the authorising body of the provincial directorate of environmental affairs, which is required to take the provincial heritage resources authorities' comments into account prior to making a decision on the HIA.
	Section 8	General duties of employers to their employees

Occupational Health and Safety Act (No 85 of 1993)	Section 9	General duties of employers and self-employed persons to persons other than their employees
National Water Act (No 36 of 1998) and regulations	Section 19	Prevention and remedying the effects of pollution
	Section 20	Control of emergency incidents
	Section 21	Licenses for water use
Hazardous Substances Act (No 15 of 1973) and regulations		Provides for the definition, classification, use, operation, modification, disposal or dumping of hazardous substances
National Veld & Forest Fire Act		Provides for a variety of institutions, methods and practices to prevent and combat veld, forest and mountain fires.
National Road Traffic Act (No 93 of 1996)		Provides for controlling transport of dangerous goods, hazardous substances and general road safety
Spatial Planning and Land Use Management Act (No. 16 of 2013).		Provides the framework for spatial planning and land use management in South Africa at the different spheres of government and for the establishment, functions and operations of Municipal Planning Tribunals.
Occupational Health and Safety Act (No 85 of 1993) and regulations		Addresses occupational health and safety aspects
SANS 10103 (Noise Regulations)		The measurement and rating of environmental noise with respect to annoyance and to speech communication
KwaZulu-Natal Planning and Development Act, (No. 6 of 2008);		Strategic spatial development intentions for the municipality based on the IDP and SDF, influenced by and in alignment with adjacent municipalities
KZN Nature Conservation Ordinance (Ordinance No. 15 of 1974)		Protected indigenous plants in general are controlled under the relevant provincial Ordinances or Acts dealing with nature conservation. In KwaZulu-Natal the relevant statute is the 1974 Provincial Nature Conservation Ordinance. In terms of this Ordinance, a permit must be obtained from Ezemvelo KZN Wildlife to remove or destroy any plants listed in the Ordinance.
KwaZulu Natal Heritage Act (Act 4 of 2008)		To provide for the conservation, protection and administration of both the physical and the living or intangible heritage resources of the Province of KwaZulu-Natal; to establish a statutory Council to administer heritage conservation in the Province.

The potential environmental impacts associated with the current project are required to be considered in compliance with the EIA Regulations (2014) as well as all the SEMA's. It must also be noted that the list of

Acts and their associated regulations must be frequently updated to ensure that all activities are done according to and comply with the most current legislation.

**Table 2-2: Current Environmental Legislation**

<b>Regulations and Guidelines</b>
Environmental Impact Assessment Regulations, 2014 (as amended).
Internal Guideline: Generic Water Use Authorisation Application Process, August 2007 by DWA.
The General Policy on Environmental Conservation (January 1994).
DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa.
Department of Environmental Affairs (2017), Public Participation guideline in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa.

**Table 2-3: Current Municipal By-Laws**

<b>By-Laws</b>
Draft Storm Water Management Bylaw, 2017
eThekweni Planning and Land Use Management By-law, 2016
Sewage Disposal Bylaw, 2016
Waste Removal Bylaw, 2016
Nuisance Bylaw, 2016

Please note that all bylaws relevant to the construction and operational phases need to be adhered to. Any bylaws adopted by the Municipality, which come into effect during the construction stage, must be adhered to.

### 3. ENVIRONMENTAL MANAGEMENT PROGRAMME

#### 3.1. EMPr METHODOLOGY

The methodology adopted is that of an Environmental Management Programme (EMPr) as described in the Integrated Environmental Management (IEM) Guidelines published by the Department of Environmental Affairs in 1992 as well as the EIA Regulations in 2014.

The EMPr has been structured to include:

- Specific goals of the Environmental Management Programme;
- Details of management actions;
- Parties responsible for carrying out management recommendations;
- Timing and duration of management actions;
- Personnel training and financial obligations; and
- Guidelines for monitoring and auditing of compliance.

The EMPr specifies the minimum requirements to be implemented as per the scope of works and scope of the EMPr, in order to minimise and manage the potential environmental impacts and ensure sound environmental management practices.

The provisions of this EMPr are binding on MET Developments, during the life of the project. It is essential that the EMPr requirements be carefully studied, understood, implemented, and always adhered to.

To simplify the EMPr requirements, each aspect related to the EMPr has been addressed below. Each action within the EMPr is supported by the priority of when the specific action will need to be implemented. Each of these aspects is briefly described below for ease of reference.

#### **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.

#### **ENVIRONMENTAL MEASURES AND ACTION PLANS**

This section indicates the actions required to either prevent and/or minimise the potential impacts on the environment that is associated with the project.

#### **TIMEFRAMES**

This section in the table indicates when the actions for that specific aspect must be implemented and/or monitor.

#### **RESPONSIBILITY**

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

## 4. MANAGEMENT AND COMPLIANCE MONITORING

### 4.1. ORGANISATIONAL STRUCTURE, ROLES AND RESPONSIBILITIES

The Project Manager (PM) is ultimately responsible for ensuring compliance with the environmental specification and upholding MET Developments' Environmental commitment to compliance with all National, Provincial and local legislation that relates to management of this environment. This includes compliance with all environmental regulatory and good management practice requirements for the duration of the project, in order to ensure effective minimisation of all environmental impacts. The PM is also responsible for the overall management and implementation, administration and enforcement of the EMPr. All major decisions must be approved by the Project Manager.

The Project Engineer (PE), appointed by MET Developments, reports directly to the Project Manager and oversees all technical aspects of the various projects. The Engineer oversees construction programmes and all construction activities performed by the Contractor, and as such also any EMP implementation, EMP compliance and environmental related activities, issues and impacts.

It is the Contractor's role to implement and comply with recommendations and conditions of the EMPr at all times.

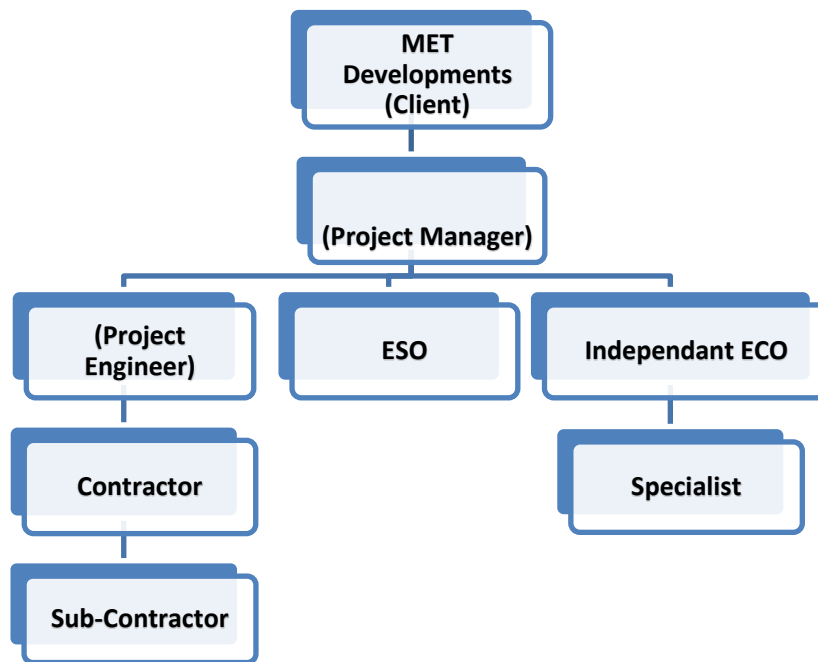
MET Developments, the Contractor or Project Engineer shall appoint an Environmental Site Officer (ESO) for the duration of a construction period. The ESO shall be a senior member of the construction company or on-site team and have overall environmental management responsibilities for the site. The ESO shall monitor the activities of the Main Contractor and all subcontractors and shall ensure that mitigation measures contained in this document are implemented and adhered to. The ESO shall liaise with the Environmental Control Officer (ECO), where applicable, on a regular basis to inform the ECO of the adherence to and effectiveness of the prescribed management measures. In the absence of an ECO, an ESO will take on the duties of an ECO. It is recommended that each facility has a person designated to the duties of an ESO.

The ECO shall be appointed by the Project Manager or Project Engineer. All further duties of the ESO and ECO shall be relevant as detailed in the EMPr and Section 4.1.2.

The ECO must be independent (with a relevant BSc. Honours qualification) and be appointed by the Project Manager or Project Engineer. All further duties of the ESO and ECO shall be relevant as detailed in the EMPr and Section 4.1.2. The ECO must fulfil an advisory consultancy, monitoring and reporting role with regard to overseeing the effective implementation and updating of the EMPr. The ECO must also make recommendations for addressing EMPr and/or environmental legal non-compliances. The ECO is also responsible for liaising with the relevant Environmental Authorities on any environmental issues to confirm their requirements, as and when required and communicating such requirement to the Project Manager and/or Project Engineer.

Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the Project Manager, Engineer, Contractor, Environmental Site Officer and Environmental Control Officer are as detailed below.

#### 4.1.1. ORGANISATIONAL STRUCTURE



**Figure 4-1:** Organogram of formal responsibilities and reporting structure for the Regent Estate development

#### 4.1.2. ROLES AND RESPONSIBILITIES

Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the Project Manager, Site Manager, Project Engineer, Contractor/s, Environmental Site Officer and Environmental Control Officer are as detailed below.

PROJECT MANAGER (PM)
<p><i>The Project Manager must:</i></p> <ul style="list-style-type: none"> <li>• Be fully conversant with the EMP<sub>r</sub> for the project;</li> <li>• Ensure that the Project Engineer and the Contractor/Operator are aware of all specifications, legal constraints, standards and procedures pertaining to the project specifically with regard to the environment;</li> <li>• Ensure that all stipulations within the EMP<sub>r</sub> are communicated and adhered to by the Project Engineer and the Contractor/Operator;</li> <li>• Arrange information meetings for or consults with I&amp;AP's about the impending construction activities;</li> <li>• On the recommendation of the Engineer and / or Environmental Officer, order the Contractor to suspend any or all works on site if the Contractor or his Sub-Contractor / Supplier fails to comply with the said specifications;</li> <li>• Order the removal of any person(s) and/or equipment in contravention of the specifications of the EMP<sub>r</sub>.</li> <li>• All of the issues described and discussed in this document will require monitoring, and it will be the responsibility of MET Developments to undertake this monitoring according to the specifications of this EMP<sub>r</sub>.             <ul style="list-style-type: none"> <li>– To draft and implement a monitoring programme to assess compliance with the EMP.</li> <li>– To appoint an Environmental Control Officer (ECO) during the Construction Phases.</li> <li>– To undertake the monitoring of operations during the operational phase. Any problems that are identified or encountered must be reported to MET Developments so that appropriate action may be taken to rectify the situation.</li> </ul> </li> </ul>

- Monitor the implementation of the EMPr throughout the project by means of regular site visits and meetings.
- Monitor and verify that environmental impacts are kept to a minimum
- Review and approve construction methods where necessary;
- Maintain a register of complaints and queries by members of the public at the site office.

#### ENGINEER

##### *The Engineer must:*

- Enforce the environmental specification on site;
- Monitor and ensure compliance with the requirements of the specification;
- Assess the Contractor's environmental performance in consultation with the Environmental Officer from which a brief monthly statement of environmental performance is drawn up for record purposes and to be reported to project meetings;
- Liaise with the Project Manager and Contractor/Operator on matters concerning the environment
- Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution of the site
- Implement remedial measures in the event of pollution incidents or environmental impacts
- Ensure the documentation, in conjunction with the Contractor, the state of the site prior to construction activities commencing. This documentation will be in the form of photographs or video record.

#### ENVIRONMENTAL CONTROL/SITE OFFICER

##### *The Environmental Control/Site Officer must:*

- Be familiar with the recommendations and mitigation measures of the associated EMPr for the project.
- Ensure site protection measures are implemented on site.
- Ensure that the Contractor, sub-contractors, construction teams are in compliance with the EMPr at all times during the project.
- Monitor all site activities weekly for compliance.
- Conduct monthly audits of the site according to the EMPr, and report findings to the PA.
- Recommend corrective action for any environmental non-compliance at the site.
- Compile a monthly report highlighting any non-compliance issues as well as progress and compliance with the EMPr prescriptions. These monthly reports are to be submitted to the Client and the PA.
- Conduct once-off training with the Contractor on the EMPr and general environmental awareness. It must be noted that the responsibility of the ECO is to monitor compliance and give advice on the implementation of the EMPr and not to enforce compliance.

#### CONTRACTOR

##### *The Contractor must:*

- Be fully conversant with the EMPr;
- Provide information on previous environmental management experience and company environmental policy in terms of the relevant forms contained in the Contract Document.
- Supply method statements timeously for all activities requiring special attention as specified and/or requested by the ECO and/or PA during the duration of the Contract.
- Be conversant with the requirements of this environmental specification/ EMPr. Brief all his/her staff about the requirements of the environmental specification;
- Comply with requirements of the Environmental Officer in terms of this specification and the project specification, as applicable, within the time period specified.
- Ensure any Sub-Contractors/Suppliers who are utilised within the context of the contract comply with the environmental requirements of the project, in terms of the specifications. The Contractor will be held responsible for non-compliance on their behalf.
- Bear the cost of any delays, with no extension of time granted, should he or his Sub-Contractors / Suppliers contravene the said specifications such that the Principal Agent orders a suspension of work. The suspension will be enforced until such time as the offending party(ies), procedure, or equipment is corrected.



- Bear the costs of any damages/compensation resulting from non-adherence to the said specifications or written site instructions.
- Bear the costs of fines/directives levied against the developer by the Department of Environmental Affairs, the Department of Water and Sanitation or eThekweni Municipality, for any incidents occurring on site, e.g. major spills.
- Comply with all applicable legislation.
- Ensure that he informs the PA timeously of any foreseeable activities which will require input from the ECO.
- The Contractor will conduct all activities in a manner that minimizes disturbance to the natural environment as well as directly affected residents and the public in general.

#### 4.2. TRAINING AND ENVIRONMENTAL AWARENESS

It is important to ensure that the Contractor has the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm. Training needs should be identified based on the available and existing capacity of site personnel (including the Contractors and Sub-contractors) to undertake the required EMP management actions and monitoring activities. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard.

The environmental training is aimed at:

- Promoting environmental awareness;
- Informing the Contractor of all environmental procedures, policies and programmes applicable;
- Providing generic training on the implementation of environmental management specifications; and
- Providing job-specific environmental training in order to understand the key environmental features of the construction site and the surrounding environment.

Training must be done in a verbal format. In addition to training, general environmental awareness must be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This ensures that environmental accidents are minimised, and environmental compliance maximised. Training must be conducted by the ESO to all construction and site personnel.

During the construction phase, Environment - Health and Safety Toolbox Talks must be held on a regular basis to discuss to address potential environmental risks, near misses or incidents and how they can be avoided in future. Regular drills are to be held to ensure that all staff are aware of the spill contingency and other environmental emergency procedures as applicable and can perform these procedures in reasonable timeframes.

## 5. ENVIRONMENTAL MANAGEMENT COMPLIANCE, MONITORING AND REPORTING

### 5.1. ENVIRONMENTAL OFFICERS

The Environmental Officer shall be responsible for the implementation of environmental management measures with monitoring and reporting. MET Developments and the Contractor/Project Engineer shall appoint an Environmental Site Officer (ESO) for the duration of the construction period. The ESO shall be a senior member of MET Developments. The Contractor ESO shall be at least a Supervisor of the construction on-site team and have overall environmental management responsibilities for the site daily.

The ESO (Client and Contractors) shall monitor the activities of the Contractor and all subcontractors daily and shall ensure that mitigation measures contained in this document are implemented and adhered to and corrective measures taken as per reports and instructions. Where relevant (e.g. significant environmental incidents and complaints), actions plan with timeframes and responsibilities shall be developed and implemented by the ESO's. The ESO shall liaise with the Environmental Control Officer (ECO) on a regular basis to inform the ECO of the adherence to and effectiveness of the prescribed management measures. All further duties of the ESO and ECO shall be relevant as detailed in the EMPr and Section 7.1.

### 5.2. EMPr COMPLIANCE MONITORING AND AUDITING WITH TIMEFRAMES

Cognisance must be taken of the National Environmental Management Act, Act No. 107 of 1998 (S.28). In terms of these acts those responsible for environmental damage must pay the repair costs, both to the environment and human health, and implement preventative measures, to reduce or prevent further pollution and or environmental damage. Compliance with all other applicable legislation is required.

Environmental monitoring is the continual evaluation of the status of the environment and condition of environmental elements. Its purpose is to detect activities that may have a negative impact on the environment as well as change that takes place in the environment over time. It therefore involves the checking and correcting of onsite activities as well as the measuring of physical, social and economic variables associated with development impacts. Monitoring will be ensured in terms of the Permits, Licenses and EMPr as per conditions and relevant authority requirements by the Holder of the Authorisations as undertaken by the Holder and Contractor ESO and ECO appointments.

The timeframes for monitoring is specified as per the relevant conditions of the various phases i.e. planning and design, construction and post construction with rehabilitation and operational. The specific conditions related to the monitoring requirements per timeframe have been specified as per relevant condition and must be ensured e.g. water quality monitoring during the construction within wetlands are different to water quality monitoring during the operational phase. Where the phase (timeframe) had been indicated e.g. "during construction" and no specific frequency was stipulated, it means that the condition must be complied with through-out the phase e.g. every day and all day as long as activities are taking place or the phase is active.

An ECO must be appointed to monitor the compliance with the pre-commencement and planning and design phase. The first construction ECO report must provide a description on compliance measures for this phase.

The ESO's shall monitor the site activities daily during the construction phase and submit proof of inspections with findings and corrections to the ECO for consideration during the ECO visits to be conducted during the construction phase.

The ECO shall audit the site for compliance with the monitoring specifications / requirements once a month and compile and submit an ECO report during the construction phase to the Client and authorities on a monthly basis.

In this regard, monitoring measures stipulated in this document for the various phases pertain to, but are not restricted to:

- Water quality management;
- Erosion control;
- Waste management;
- Open-Space management Plan;
- Alien invasive management Plan;
- Rehabilitation of disturbed areas;
- Protected tree species management;
- Compliance with the EA and EMP conditions.

The ESO shall monitor the works on a day to day basis and shall report any problems in terms of adherence with the EMP directly to the Project Manager and ECO.

Environmental Inspections and Audits shall be undertaken by the ECO with the assistance of the ESO on a monthly basis during the Construction Phase. The ESO shall have all necessary documentation available during the audits. The results of these audits will be included in EMP Compliance Reports.

The Contractor is deemed not to have complied with the Environmental Specification / EMP if:

- There is evidence of contravention of clauses within the boundaries of the site and wetlands;
- Environmental damage ensues due to negligence;
- The Contractor ignores or fails to comply with corrective or other instructions issued by the Project Manager or Engineer within a specified time; and
- The Contractor fails to respond adequately to complaints from the public.

Application of a penalty clause will apply for incidents of non-compliance (See Section 4.5 for details).

The Operational phase monitoring responsibilities and frequencies to be conducted by the Environmental Officer / ECO as per stipulated criteria and environmental authorisations e.g. WUL. Where the frequency had been stipulated as “ongoing”, compliance to the required condition must be ensured through-out the lifetime of the operational phase. Compliance will thus be monitored on a monthly basis by the ECO.

### 5.3. COMPLAINTS AND ENVIRONMENTAL INCIDENTS

Identifying, recording and reporting complaints and environmental incidents further ensures the monitoring and auditing of environmental compliance and assessment of performance against the actual and perceived environmental aspects and impacts on site.

#### **DOCUMENTATION**

The following documentation must be kept on site in order to record compliance with the EMP:

- Record of Complaints
- Non-conformance Reports
- Written Corrective Action Instructions
- Notification of Emergencies and Incidents.

The following inspection sheet and report templates are recommended and included in **Appendices B-E** respectively.

- Project Start Up Inspection Sheet
- Routine Site Inspection Sheet
- Construction Site Decommissioning Inspection Sheet
- Site Inspection Report Structure

## COMPLAINT RECORDS

The Contractor must record any complaints received. The lodged complaint must be brought to the attention of the ECO/PM who will respond accordingly. The following information will be recorded:

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

The complaints must be communicated to the Site Manager and ECO who will respond accordingly. An investigation must ensue and a response to the complainant must be provided within seven working days.

All environmental incidents occurring on the site will be recorded by the Contractor / ECO and submitted to the PM and copied to the EDTEA. The following information will be documented:

- *Time, date, location and nature of the incident*
- *Actions taken and by whom*
- *Response to complainant*
- *Close Out.*

The ECO, in conjunction with the Engineer and Contractor, will identify and authorise remediation action where necessary.

The following additional information may be added to the complaints and incident records:

- *Party/parties responsible for causing complaint/incident*
- *Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint/incident*
- *Timeframes and the parties responsible for the implementation of the corrective or remedial actions*
- *Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented*
- *Copies of all correspondence received regarding complaints/incidents*

As mentioned, EMPr compliance is the responsibility of all the parties that make up the project team. Similarly, all these parties have a role to play in EMPr compliance monitoring and reporting in accordance with the authority structure. For example, sub-contractors must monitor their own compliance and report any discrepancies, non-compliances or incidents to the contractor, while the contractor must in turn monitor the sub-contractor compliance. In turn, the Engineer must monitor the Contractor's EMPr compliance on a day-to-day basis while the ECO has the role to undertake regular site inspections and audits and prepare audit reports.

The above records will form an integral part of the Contractors' Records. These records will be kept with the EMPr, and will be made available for scrutiny if so, requested by the Client or Project Manager.

Outlined below are steps relating to increasing severity of environmental problems, which will be implemented. The principle is to keep as many issues within the first few steps as possible.

### • Step 1

The ECO discusses the problem with the contractor or guilty party, and they work out a solution together. The ECO records the discussion and the solution implemented.

### • Step 2

The ECO or Client observes a more serious infringement, and notifies the guilty party in writing, with a deadline by which the problem must be rectified. All costs will be borne by the contractor.

### • Step 3

The ECO shall order the contractor to suspend part, or all, the works. The suspension will be enforced until such time as the offending party/parties, procedure or equipment is corrected and/or remedial measures put in place if required. No extension of time will be granted for such delays and all cost will be borne by the contractor.

### • Step 4

Breach of contract - One of the possible consequences of this is the removal of a contractor and/or equipment from the site and/or the termination of the contract, whether a construction contract or an employment contract. Such measures will not replace any legal proceedings that MET Developments may institute against the contractor.

## 5.4. NON-COMPLIANCE, PENALTIES AND 'SUSPENDED WORK' ORDERS

The Engineer, in consultation or on the advice of the ECO, shall issue penalties ('spot fines') if the Contractor infringes environmental specifications set out in this EMP. The Contractor shall be advised in writing of the nature of the infringement and the amount of the spot fine. The Contractor shall be liable for the fine and it is his responsibility to recover the fine from the relevant employee. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement.

The Contractor is also advised that the imposition of spot fines does not replace any legal proceedings the authorities, landowners and/or members of the public may institute against the Contractor. Spot fines shall be between R100.00 and R20 000.00, depending upon the severity of the infringement. A list of typical EMP non-compliance incidents for which penalties may incur and associated fine value is included in **Appendix F**. For each subsequent similar offence, the penalty may, at the discretion of the Engineer or ECO be doubled in value to the maximum value to be determined by the Engineer and ECO.

This list may be amended provided it is formally issued to the Contractor prior to an incident for which a penalty is imposed. The decision on when to impose a penalty will be at the discretion of the Engineer or ECO and will be final. In addition to the spot fine, the Contractor shall be required to make good any damage caused as a result of the infringement at his own expense.

### ***LIST OF INFRINGEMENTS THAT RESULT IN SPOT-FINES***

A preliminary list of infringements for which spot fines can be imposed is as follows:

- Using any areas outside the working areas without permission
- Clearing and/or levelling areas outside of the working areas
- Spillage onto the ground or water bodies of oil, diesel, etc.
- Picking/damaging plant material
- Damaging/killing animals/birds
- Untidiness and litter at camp
- Inappropriate use of bins and poor waste management on site
- Making fires on site
- Discharging effluent and/or storm water onto the ground or into surface water
- Repeated contravention of the specifications or failure to comply with instructions
- Additional fines as determined by the ECO and added to this list
- Damage to any identified heritage sites.

A more comprehensive list of incidents and associated penalty values is provided in **Appendix F**. The Engineer shall retain records for spot fines issued. Monies for the spot fines will be deducted from the Contractor's monthly certificate. The penalty imposed will be per incident. Unless otherwise stated in the project specification, the penalties imposed per incident or violation will be a set amount.

The Engineer at his own discretion, or on recommendation from the ECO, may also order the Contractor to place on hold or suspend part or all the works if the Contractor repeatedly causes damage to the environment

by not adhering to the EMPr (i.e. more than 3 cases of infringements). The suspension will be enforced until such time as the offending actions, procedure or equipment is corrected. No extension of time will be granted for such delays and all costs will be borne by the Contractor. Work may also be placed on hold if a heritage artefact or feature or grave is uncovered or to prevent a potential significant incident from occurring or spreading.

## 5.5. METHOD STATEMENTS

Method Statements indicate how the Contractor will achieve compliance with environmental legislation, good management practice and the Environmental Specifications during the construction phase. Method Statements may be required for any identified specific activity or group of activities for which it is considered necessary to implement a detailed method to mitigate potential environmental impacts. In addition to the Method Statements identified in this EMPr, the Contractor, Engineer and/or ECO may require additional Method Statements for effective environmental management and as the project unfolds.

### **PROCEDURES AND CONTENT**

The Contractor shall submit a written Method Statement to the Engineer for approval and shall only implement a Method Statement once he has received the Engineer's approval in writing. On receipt of a Method Statement the Engineer shall forward a copy thereof to the ECO. Both the Engineer and ECO shall review the Method Statement and come to an agreement as to whether the Method Statement is acceptable or requires amendments.

The Method Statement shall state clearly:

- Timing of activities
- Materials to be used
- Equipment and staffing requirements
- Proposed construction procedure designed to implement the relevant environmental specifications
- The system to be implemented to ensure compliance with the above
- Other information deemed necessary by the Contractor, Engineer and/or ECO.

The Method Statement shall be submitted at least 14 working days prior to the projected commencement of work on an activity, to allow the Engineer and ECO time to study and approve the Method Statement. The Engineer shall strive to review and approve the Method Statement within 7 working days of receipt thereof.

Once a Method Statement is approved it is binding and the Contractor must therefore ensure that all activities to which the approved Method Statement applies are carried out accordingly.

Due to changing circumstances, it may be necessary to modify Method Statements. In such cases, the proposed modifications must be reviewed by the PE and ECO. The Contractor may only implement a revised Method Statement once he receives formal written approval from the PE to do so. The Contractor must also obtain approval from the PE for any deviation from a Method Statement.

The ECO and PE must retain records of any amendments to any Method Statement and ensure that the most current version of all Method Statements is being used.

### **REQUIRED METHOD STATEMENTS**

Method Statements that are identified and required from the Contractor in terms of this EMPr may cover, for example, the following activities:

- Location, layout and preparation of the construction camp(s) and materials storage areas

- Location, layout and preparation of cement/concrete batching facilities including the methods employed for the mixing of concrete and the management of runoff water from such areas
- Stormwater management plan
- Contaminated water management plan, including the containment of runoff and polluted water
- Incidence Response Method Statements (including details of methods for fuel spills and clean-up operations)
- Solid waste management and removal of waste from site
- Traffic diversions (only to be done in consultation with the relevant Traffic Authority).

As mentioned, additional Method Statements may be identified and required by the Contractor, Engineer and/or ECO as the project unfolds.

## **5.6. LIMITATIONS AND ASSUMPTIONS REGARDING ASSESSMENT AND MITIGATING OF IMPACTS**

The assumption is that all significant issues have been identified during the development of the EMPr.

Environmental issues, concerns and development constraints were identified using professional judgement, project information, experience of similar projects, a review of available literature, site visits and consultation with the authorities.

The significance of environmental issues was evaluated, and mitigation and management measures were identified as part of the EMPr development.

The effectiveness of the EMPr is limited by the level of adherence to the conditions set forth in this report by the Client and the various contractors and agents acting on behalf of the Client.

It is further assumed that compliance with the EMPr will be monitored and audited on a regular basis as set out in the EMPr. It should also be noted that this EMPr is a dynamic document that must be continually updated, as and when required. Also, all other documents from the Client must be referred to in addition to this EMPr.

## 6. SUMMARY OF ACTIVITIES AND ASPECTS CAUSING IMPACTS

The construction of the Proposed Regent Estate Development can potentially result in negative impacts on the receiving environment. These potentially significant negative impacts have been identified and summarised by the Environmental Assessment Practitioner (EAP).

- Site layout and design
- Energy
- Storm water
- Safety and security
- Activities close to sensitive areas
- Erosion
- Water pollution
- Sensitive areas and associated impacts
- Alien vegetation
- Waste management
- Wastewater/effluent disposal
- Noise, dust and odours

The above-mentioned aspects can potentially cause negative impacts that may occur during the planning, construction, operational or decommissioning phases of the proposed project:

In order to prevent and/or minimise these impacts, care must be taken with, *inter alia*, the disposal of waste, spillage, storage, noise, dust control, sediment management, the demarcation of sensitive areas and management of the different phases of construction and operation. This can be achieved by effective implementation of the necessary mitigation measures as stipulated in this EMPr. With adequate management, the associated risks and significant negative impacts of the proposed project can be minimised and/or entirely negated. These will all be dealt with in this EMPr.



## 7. DETAILED ENVIRONMENTAL MANAGEMENT PROGRAMME

This Section provides environmental specifications that must be adhered to during construction and operational phases of the Proposed Regent Estate Development. It is essential that all listed specifications are considered and appropriately incorporated into the planning, design and/or contract documentation, and adhered to during the respective phases of the project.

The listed environmental specifications should be regarded as the minimum range of environmental constraints, controls, procedures and/or standards. They should not be regarded as exhaustive and therefore improvements and/or amendments should be made where reasonable and required.

Such requirements may be identified by stakeholders and/or other interested and affected parties, upon which the EMPr and the relevant environmental specifications may require revision. Environmental specifications have been listed in tables in the sub-sections as per the following phases:

- Planning, Design and Pre-Construction phase
- Construction phase
- Rehabilitation phase
- Operational phase with maintenance and ongoing rehabilitation
- Post-Construction Phase and Rehabilitation Activities

For each timeframe and specification, the responsible monitoring party/parties and frequency, where relevant, is indicated.

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

### 7.1. PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
<b>7.1.1. Administrative and Legal Requirements</b>			
Planning Requirements	1. All environmental approval required must be considered such as Environmental Authorisation, licenses (water use licences, heritage permits, DAFF and EKZN permits) and must be authorised prior to the commencement of the proposed Regent Estate Development.	Project Developer / Contractor / ECO / Project Engineer	During design and prior to, construction
	2. Appoint an EAP to conduct the required environmental processes in terms of the NEMA and NWA to ensure legal compliance, when relevant.	Project Manager	Prior to, construction
	3. Consider and implement where feasible environmentally responsible lay-out and sustainable designs to reduce resource consumption (electricity, water) and prevent potential pollution and /or environmental degradation during the operational phase of the project.	Project Developer / Contractor / ECO / Project Engineer	During design and prior to, construction
	4. Consider and implement where feasible favourable socio-economic options / solution, including but not limited to low maintenance infrastructure, incorporation with existing facilities and infrastructure and logistical arrangements and implementation of low energy or renewable energy options.	Project Developer / Contractor / ECO / Project Engineer	During design and prior to, construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	5. Include the EMPr in all tender documentation and ensure that environmental requirements for the construction are budgeted for by all contractors and sub-contractors.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
	6. The demarcation work must be signed off by the appointed Environmental Assessment Practitioner (EAP) or Environmental Control Officer (ECO) before any work commences.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
Roles Responsibilities for Environmental Management and Environmental Awareness	1. The overall responsibility for ensuring the implementation of this environmental management plan rests with the Project Developer / Contractor / ECO.	Project Manager	Prior to, during and after construction
	2. Responsibility for on-site implementation of environmental management as well as the associated cost with the implementation of the EMPr rests with all appointed contractors, sub-contractors and suppliers.	Project Engineer/ Contractor	Prior to, during and after construction
	3. MET Developments and appointed contractors must ensure that all permanent and temporary staff, sub-contractors and suppliers adhere to this EMPr.	Project Developer / Contractor / ECO.	During construction
	4. Prior to the commencement of construction as well as during construction, proper signage must be erected along the roads warning both pedestrians and motorists of earthworks.	Contractor	Prior to, during and after construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	<p>5. MET Developments / Project Engineer / Main Contractor must appoint a senior staff member directly involved in the site construction activities as the <b>Environmental Site Officer (ESO)</b>. This person will ensure the implementation of and adherence to the EMPr in the contractor's execution of the day-to-day construction activities.</p>	Project Manager	Prior to construction
	<p>6. The environmental responsibility of the ESO must be specified in this person's duties, which will also include:</p> <ul style="list-style-type: none"> <li>• Liaison with the appointed ECO;</li> <li>• Ensuring environmental awareness among members of the workforce;</li> <li>• Ensuring that the Contractor/s and members of the construction workforce are aware of the requirements of the EMPr;</li> <li>• The on-site implementation of the EMPr;</li> <li>• Monitoring inappropriate behaviour, environmental impacts, including pollution and environmental incidents; and</li> <li>• The implementation of corrective action.</li> </ul>	Project Developer	Prior to construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	<b>Environmental Control Officer (ECO)</b>  7. MET Developments must appoint a person with a qualification in environmental management or science as the ECO. The ECO will be the responsible person for monitoring and reporting on compliance in respect of the implementation of the EMPr. Requirements include: <ul style="list-style-type: none"> <li>• Monthly monitoring of activities to ensure compliance with the EMPr;</li> <li>• Liaison and ongoing communication with the Environmental Site Officer;</li> <li>• Ensuring the Implementation of preventative and corrective actions in accordance with the requirements of the EMPr and outcomes of environmental monitoring / auditing;</li> <li>• Reporting of environmental incidents that may occur on site in accordance with the requirements of the EMPr and environmental legislation;</li> <li>• Monitoring and reporting on compliance with this EMPr to MET Developments and the EA.</li> </ul>	Project Developer / Contractor / ECO.	Prior to and during construction
	8. The contractor and Environmental Site Officer must inform the ECO prior to the commencement of any significant construction activity.	Contractor / ESO	Prior to construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	9. Necessary measures must be taken to prevent the wastage of natural resources. These will include closing taps and valves, switching off lights during daytime and preventing spillages of consumables.	Contractor	During construction
	10. All members of the construction workforce working on the site or near the roads must be provided with proper high visibility clothing to ensure that they can be distinguished from the general public and be seen by motorists.	Contractor	During construction
	11. All construction workers handling chemical or hazardous substances must be trained in the use of such substances and the environmental, health and safety consequences of incidents.	Contractor	Prior to and during construction
	12. Access to the Regent Estate site must be strictly controlled, with all contractors and visitors required to sign in at the site office, undergo induction, sign an indemnity and wear PPE.	Contractor	Prior to and during construction
	13. The entrance should include signage indicating no flora or fauna is to be disturbed. An after-hours number should be provided which can be contacted to lodge complaints, such as excessive dust from roads.	Contractor	Prior to and during construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	14. The conduct of the construction staff when dealing with the public or other stakeholders must be in a manner that is always polite and courteous. Failure to adhere to this requirement may result in the removal of staff from the site by MET Developments.	Contractor	During construction
Compliance	1. All persons appointed / employed by MET Developments or their contractors on this project must abide by the requirements of the EMPr and EA.	Project Developer / Contractor / ECO.	Prior to and during construction
	2. MET Developments or contractors will not direct a person to undertake any activity which would place them in contravention of the specifications contained within the EMPr.	Project Developer / Contractor / ECO.	Prior to and during construction
	3. Any member of the construction, operation or maintenance workforce found to be in breach of any of the specifications contained within the EMPr may be ordered to leave the site. The order can be given orally or in writing. Confirmation of an oral order in writing will be provided as soon as practically possible, but the absence of a written order must not be cause for an offender to remain on site. No extension of time will be granted for any delay or disadvantage to MET Developments brought about by an offender ordered to leave the site.	Project Developer / Contractor / ECO.	Prior to and during construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	<p>4. If a contractor be in breach of any of the specifications contained in the EMPr, MET Developments/ ECO / Engineer must, verbally or in writing, instruct the responsible Contractor regarding corrective and/or remedial action required, specify a timeframe for implementation of these actions, and/or indicate that work will be suspended in the event non-compliance continue. Contractors must be responsible and will bear the cost of any delays, corrective or remedial actions required as a result of non-compliance with the specifications and clauses of the EMPr.</p>	Project Developer / Contractor / ECO. / Engineer	During construction
Environmental Training and Induction	<p>1. In terms of section 2 (h) and (j) of the NEMA, the contractor has the responsibility to ensure <b>all</b> personnel involved in the project are aware of, and familiar with, the EMPr, the key environmental issues and consequences of non-compliance to the EMPr.</p>	Contractor / ESO	Prior to and during construction



## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	<p>2. To ensure compliance to the EMPr by contractors, sub-contractors and employees, MET Developments/ Main Contractor must ensure that the EMPr forms part of the formal site induction for all contractors, sub-contractors and casual labourers. The main contractor/ESO must prepare and submit the training material to the ECO for approval. The induction training must, as a minimum, include the following:</p> <ul style="list-style-type: none"> <li>• The environmental impacts, actual or potential, of their work activities;</li> <li>• Why the environment needs to be protected;</li> <li>• Their roles and responsibilities in achieving compliance with the EMPr, including emergency preparedness and response requirements; and</li> <li>• The potential consequences of departure from specified operating procedures.</li> </ul>	Project Developer / Contractor / ECO. / Project Engineer	Prior to construction
	3. The use of pictures and real-life examples must be incorporated in the training and awareness material.	Project Developer / Contractor / ECO. / Project Engineer	Prior to construction
	4. All contractors, sub-contractors and casual labourers must acknowledge their understanding of the EMPr and environmental responsibilities by signing an induction attendance record.	Contractor / ESO	Prior to construction
	5. All employees must complete a course in environmental awareness of the site, including the necessity to stay within the footprint of the site to limit disturbance, and prohibited activities.	Contractor / ESO	Prior to construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	6. Contract employees must be educated about the value of wild animals and the importance of their conservation.	Project Developer / Project Engineer	During design and prior to, construction
Worker Conduct on Site	<p>1. A general regard for the social and ecological well-being of the site and community is expected of the site staff. Workers must be made aware of the following general rules:</p> <ul style="list-style-type: none"> <li>• No alcohol / drugs to be present on site;</li> <li>• No firearms allowed on site or in vehicles transporting staff to / from site, (unless used by security personnel);</li> <li>• Prevent unsocial behaviour;</li> <li>• No harvesting of firewood from the site or from the areas adjacent to it;</li> <li>• Construction staff must make use of the facilities provided for them, as opposed to ad-hoc alternatives. (e.g.: fires for cooking);</li> <li>• Driving under the influence of alcohol is prohibited.</li> </ul>	Contractor/ ESO	Prior to construction
	2. If construction staff, be approached by members of the public or other stakeholders, they must assist them in locating MET Developments or the Project Developer, Contractor or provide a number on which they may contact MET Developments, Project Developer or Contractor.	Contractor	During construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
<b>7.1.2. No-Go Areas</b>			
No-go areas	1. No-go areas must be agreed to in consultation between the ECO, Engineer and Municipality prior to construction. These will include but not be limited to the Aller river and its associated buffers, DMOSS, CBA's, vegetation of high sensitivity (grassland and forest) adjacent properties and other sensitive environments.	Project Developer / Contractor / ECO. / Project Engineer	Prior to construction
	2. Unauthorised access onto/into private properties is strictly prohibited.	Contractor	Prior to, during and after construction
	3. The Aller River and sensitive areas are No-Go Zones.	Contractor	During construction
<b>7.1.3. Site Establishment</b>			
Planning	1. Ensure that natural features must be considered, and potential impacts must be minimised and/or prevented where feasible.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
	2. Ensure that materials to be used during construction are from a legal and licensed source. Water or sand is not extracted from watercourses; In the event this be a requirement, then the required permits and approvals must be obtained from authorities before construction is to commence. It is recommended that filling and levelling material be sourced from the local quarry.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Site Access	1. Access to the site for site establishment and construction must be planned from the existing Glengarry Road.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
	2. Access control to the site.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
Setting of Construction Camp Site	1. The site selected for a Construction Camp must ensure potential negative impacts on the biophysical environment are kept to a minimum. The location must be within the perimeter of the proposed site and located out of the 1:100-year floodline.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
	2. The construction site is not to be erected in any open grassland areas or forests and must be at least 32m away from watercourses. The site must be erected within an impacted area. The location must be approved by the ECO.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
	3. The construction site must be defined, fenced off and limited to authorised contractors only.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
	4. Vegetation removal at the construction camp must be kept to a minimum. No trees within the construction camp are to be removed except for alien weeds and invader plants identified and approved by the developer and ECO.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Design of Construction Camp Site	1. The construction camp must comprise of: <ul style="list-style-type: none"> <li>• Site office;</li> <li>• Ablution facilities;</li> <li>• Designated first aid area;</li> <li>• Eating areas;</li> <li>• Staff lockers;</li> <li>• Storage areas;</li> <li>• Maintenance and refuelling areas (if required).</li> </ul>	Contractor	During Camp Establishment, prior to construction
	2. Development should be kept within the footprint and not extend into any areas outside of the footprint design, areas outside the footprint will be managed as part of the Open-Space Management Plan.	Contractor	During Camp Establishment
	3. The footprint of the construction camp must be kept to a minimum.	Contractor	During Camp Establishment
	4. Enough parking must be provided for site staff and visitors at the construction camp.	Contractor	During Camp Establishment
	5. Drainage from the site must be planned to prevent standing water and erosion occurring from run-off.	Project Engineer	During design and prior to, construction
	6. Temporary cut-off drains may be required to capture stormwater and promote infiltration.	Project Engineer	During design and prior to, construction
	7. Water for construction purposes must be obtained from MET Developments. No abstraction from the watercourses will be permitted without the required authorisations from DWS.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
Sanitation / Ablutions at Camp Site	1. Chemical toilets must be used as ablution facilities during the construction period by all contractors.	Contractor	Prior to construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	2. Chemical toilets must, however, not be located closer than 100m from any watercourses.	Contractor	Prior to construction
	3. The construction of “long drop” toilets is forbidden.	Contractor	During construction
	4. Chemical waste from the toilets may under no circumstances be disposed via a septic tank system but must be disposed of by a reputable waste disposal company. Safe disposal certificates must be kept on site, for record keeping purposes.	Contractor	During planning
Waste Management at Camp Site	1. Bins and / or skips must be provided at frequent intervals for disposal of waste at the construction area and construction camp.	Contractor	During site set-up
	2. The excavation and use of rubbish pits on site are forbidden. All waste must be reused, recycled or disposed of by registered companies or at a registered waste disposal site.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
<b>7.1.4. Equipment, Vehicle Maintenance Yard and Secured Storage Areas</b>			
Establishing Equipment, Vehicle and Storage Areas	1. The equipment and vehicle maintenance yard must be situated within the boundaries of the construction camp only.	Contractor	Prior to construction
	2. The choice of location must consider prevailing winds, distance to water bodies and general on-site topography.	Contractor	Prior to construction
	3. Storage areas must be designated, demarcated, within a fenced / secured area and located 32m away from watercourses.	Contractor	Prior to construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	4. Fire prevention facilities must be present at all storage areas and fire breaks must be planned and implemented where required.	Contractor	Prior to and during construction
Hazardous substances and material	1. Refuelling areas, if required, must be bunded with an impermeable liner to prevent potential pollution from spillage.	Contractor	Prior to construction
	2. Material Safety Data Sheets (MSDS's) must be readily available on site for all chemicals and hazardous substances to be used on site. MSDS's must include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.	Contractor	Prior to construction
	3. Contractors must submit a method statement / procedure for the storage and handling of hazardous materials and relevant emergency procedures.	Contractor	Prior to construction
	4. Fuel must be stored in closed drums within a secondary containment facility or bowsters with pollution prevention measures in the event of spillage.	Contractor	Prior to and during construction
	5. Fuel tanks must meet relevant specifications and be elevated to provide for the early detection of leaks.	Contractor	Prior to Construction
	6. Staff dealing with these materials / substances must be aware of their potential impacts and follow the proper safety measures.	Contractor	Prior to and During construction
	7. Fuel storage areas must be at least 3.5m from any buildings, boundaries or combustible / flammable material(s) and at least 10m from stormwater drains.	Contractor	Prior to Construction
	8. Symbolic safety signs (in accordance with SABS 1186) must be erected at storage facilities and tank capacities must be clearly indicated (in accordance with SABS 0232).	Contractor	Prior to Construction



## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Transport of Materials/Components	1. Secure and ensure safe passage for components and materials between destinations. Loads including, but not limited to sand, stone chip, fine vegetation, refuse, paper and cement, must have proper cover to prevent it from spilling over the side of the vehicle during transit.	Contractor	Prior to Construction
	2. If a spillage occurs resulting from the failure by staff or supplier to properly secure materials to be transported (as per previous condition) then the contractor is responsible for remediation and cleaning-up measures.	Contractor	Prior to Construction
<b>7.1.5. Materials Management – Sourcing</b>			
Source of Materials	1. Materials that will be used during construction must be legally sourced. Waybills must be produced for record keeping purposes.	Contractor	Prior to construction
	2. Only commercial sources will be used e.g. material from the local quarry. No borrow-pits will be created or used for source material.	Contractor	Prior to construction
	3. Contractors must prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc.) and submit these to the project manager, engineer and ECO for approval prior to commencement of any work. Where applicable, a signed document from the supplier of natural materials must be obtained confirming that they have been obtained in a sustainable manner and in compliance with the relevant legislation.	Contractor	Prior to construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
<b>7.1.6. Water Management, Drainage Areas</b>			
Stormwater and Drainage	1. To prevent stormwater damage, the increase in stormwater run-off resulting from construction activities must be estimated and the drainage system assessed accordingly.	Project Developer / Contractor / ECO. / Project Engineer	During design and prior to, construction
	2. Stormwater disposal must be designed and implemented in such a manner that ponding, soil saturation, erosion, and/or sloughing are prevented.	Project Developer / Contractor / ECO. / Project Engineer	During design and construction
	3. Stormwater design must ensure that all stormwater is carried off site.	Project Developer / Contractor / ECO. / Project Engineer	During design and construction
	4. All surface water is suitably channelled through effective engineering drainage control flow lines to prevent potential pollution of this water flow.	Project Developer / Contractor / ECO. / Project Engineer	During design and construction
	5. Temporary cut off drains and berms may be required to capture stormwater and promote infiltration.	Project Developer / Contractor / ECO. / Project Engineer	During design and construction
	6. Stormwater outfalls must be designed to reduce flow velocity in order to reduce and prevent soil erosion.	Project Developer / Contractor / ECO. / Project Engineer	During design and construction
Water Quality	1. Storage areas that contain liquids, that could be hazardous to the environment, must be bunded with an approved impermeable liner. Bunds must have the capacity to hold 110% of the quantity of liquid stored.	Contractor	During set-up

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	<p>2. Spill contingency plan must be compiled and implemented. The following must be considered in the event of a spill:</p> <ul style="list-style-type: none"> <li>• Stop the source of the spill;</li> <li>• Contain the spill;</li> <li>• All significant spills must be reported to the relevant authorities;</li> <li>• Remove the spilled product for treatment or authorised disposal;</li> <li>• Determine if there are soil, water, environmental or any other impact;</li> <li>• The incident must be documented.</li> </ul> <p>Refer to <b>Annexure J</b> for a copy of the Spill Contingency Plan.</p>	Contractor	During design and construction
	3. All-natural waterways within the development site should be clearly identified before construction activities begin.	Contractor	Prior to construction
	4. Runoff from disturbed areas must be directed to silt traps (silt fences and sandbags to remove sediment and reduce the sedimentation of the water bodies.	Contractor	Prior to construction
	5. The area where water disperses out of a drain must be suitable for such and must not be susceptible to erosion.	Contractor	Prior to construction and construction
	6. Direct discharges of runoff from developed/ disturbed areas to receiving waters should be avoided wherever possible. This involves the use of collection/conveyance through closed conduits. Runoff should be routed through one or a combination of runoff treatment practices.	Contractor	Prior to construction and construction

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	7. Water discharged into the environment must be done so in a manner that is not conducive to erosion and does not result in heavily silt-, nutrient-, toxic and pathogen-laden water flowing into any water resource/river. In this regard, storm water must be to divert water through dense vegetation (to act as a filter) before re-entering the river.	Contractor	Prior to construction and construction
<b>Fauna and Flora Management</b>			
General	1. All permits for Species of Special Concern should be obtained for their removal or transplantation prior to construction.	Ecological Specialist	Prior to construction
Flora	1. Effected floral specimens, especially trees, must be relocated prior to construction and relocated to a safe area within the property, if possible.	Project Developer / Contractor / ECO	Prior to construction
	1. Trees that are not cleared must be marked beforehand with danger tape	Project Developer / Contractor	Prior to construction
<b>7.1.7. Security and Lighting</b>			
Security	1. The camp site must be secured with a fence to ensure the safety and security of the site and infrastructure as well as the safety of the general public.	Contractor	During set-up

## PLANNING AND DESIGN PHASE & PRE-CONSTRUCTION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Lighting	1. Lighting on site is to be set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance to the residence.	Project Developer / Contractor / ECO. / Project Engineer	During design and construction
	2. Artificial lighting must be restricted to areas under construction and not directed elsewhere, in order to minimise the potential negative effects of the lights on the natural nocturnal activities. Where lighting is required for safety or security reasons, this must be targeted at the areas requiring attention.	Project Developer / Contractor / ECO. / Project Engineer	During design and construction
	3. Yellow sodium lights must be prescribed as they do not attract as many invertebrates (insects) at night and will not disturb the existing wildlife. Sodium lamps require a third less energy than conventional light bulbs.	Project Developer / Contractor / ECO. / Project Engineer	During design and construction
Safety Considerations	1. Provide details identifying what safety precautions will be implemented to ensure the safety of all staff, and the general public, on site during the construction period. This will include protective clothing requirements for all types of construction activities on site, e.g. protection against dust, noise, falling objects.	Contractor/ ESO	Prior to construction

## CONSTRUCTION PHASE ACTIVITIES

### 7.2. CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
<b>7.2.1. Administrative and Legal Requirements</b>			
Legal Requirements and Roles and Responsibilities for Environmental Management	1. The construction activities must comply with applicable SANS noise standards.	Contractor	During construction
	2. All procedures must comply with and equipment must be used in accordance with the Occupational Health and Safety Act Regulations (OHSA) of South Africa, Act no. 85 of 1993.	Contractor	During construction
	3. The KwaZulu-Natal Conservation Management Act No 9 of 1997, which applies to all fish, game, birds and other wildlife as well as plants and other living resources, must be complied with.	Contractor	During construction
	4. All contractors, sub-contractors or agents and their employees will be responsible for the implementation of the EMPr and adherence to the conditions of the EMPr and Environmental Authorisations.	Contractor	During construction
	5. The ECO will be the responsible person for monitoring and reporting on compliance in respect of the implementation of the EMPr.	Project Developer / Contractor / ECO.	During construction
	6. The Environmental Site Officer will be responsible for on-site implementation and daily monitoring of implementation of the EMPr. The ESO will provide evidence to the ECO that the EMPr is being implemented and adhered to (either through inspections sheets or audit reports).	ESO	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	7. Schedule construction activities in the dry season to prevent increased surface runoff, erosion and sedimentation as well as to avoid disturbance to resources during critical periods i.e. periods of courtship, breeding, nesting etc.	Project Developer / Contractor / ECO.	During construction
	8. As part of the induction process, all construction staff should be educated about the importance and sensitivity of environmental areas (such as D'MOSS and CBAs) near or within the construction site. Frequent inspection of the site must be done to ensure that the integrity of sensitive areas is maintained at all times.	ESO	During construction
	9. Institute environmental best practice guidelines as per the DWAF (2005): Integrated Environmental Management Series for Construction Activities;	Project Developer / Contractor / ECO.	During construction
Compliance	1. A fine will be issued by EDTEA for wilful negligence or non-compliance resulting in environmental degradation or pollution. The fine will be determined by EDTEA based on the severity of the incident and potential action by MET Developments. These costs will not be recoverable from the project & will be utilised to rectify the environmental degradation caused.	Project Developer / Contractor / ECO.	During construction
Monitoring / Auditing and Reporting	1. Monthly monitoring, auditing must be conducted and reporting to EDTEA. This must be done by the ECO in accordance with the conditions. The ESO must assist the ECO during the audit.	ECO/ESO	During construction, rehabilitation and closure
	2. ECO must submit monthly audit reports to EDTEA; Compliance section.	ECO	During construction



## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	3. The Alien Invasive Management Plan, must be implemented for the removal and control the alien vegetation within the site throughout the life of the development.	ECO / ESO / Main Contractor / Project Engineer	During construction
	4. The Open Space Management Plan must be implemented to manage the indigenous areas on site.	ECO / ESO / Main Contractor / Project Engineer	During construction
	5. Should activities other than alien plant management are to occur within the indigenous vegetation areas, these should be in line with conservation goals and include, but not be limited to: <ul style="list-style-type: none"> <li>• Paths created for hiking and viewpoints</li> <li>• Benches placed in strategic areas for viewpoints and bird watching</li> <li>• Placement of bins to ensure proper disposal of litter</li> <li>• Placement of information boards to allow visitors to learn about the forests and associated fauna and flora</li> </ul>	ECO / ESO / Main Contractor / Project Engineer	During construction
Review	1. The ECO, ESO and Engineer must consult and review compliance and performance against the EMPr and resolve inter alia environmental concerns, non-compliance (including environmental incidents) and any complaints.	ECO / ESO / Main Contractor / Project Engineer	During construction
	2. Develop and implement proper environmental management and auditing systems to ensure that pollution prevention and impact minimisation plans and measures are implemented.	Project Developer / Contractor / ECO.	During construction
<b>7.2.2. No-Go Areas</b>			
General	1. The area of indigenous vegetation should be left natural as part of the open space of the development and managed actively for conservation/open space.	Contractor	Ongoing

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	2. Unauthorised entry, stockpiling, dumping or storage of equipment, material or waste outside the project boundaries is strictly prohibited.	Contractor	During construction
	3. Development should be kept within the footprint and not extend into any areas outside of the footprint design, areas outside the footprint will be managed as part of the Open-Space Management Plan.	Contractor	During construction
	4. Open space areas should be maintained as corridors with no barriers (such as fences, and roads) superfluous fences should be removed.	Contractor	During construction
	5. Gathering of firewood, fruit, plants or any other natural material on site or in areas adjacent to construction sites is prohibited.	Contractor	During construction
	6. Unauthorised access onto/into private properties is strictly prohibited.	Contractor	During construction
	7. Access to the Regent Estate site must be strictly controlled, with all contractors and visitors required to sign in at the site office, undergo induction, sign an indemnity and wear PPE.	Contractor	Daily
	8. The entrance should include signage indicating no flora or fauna is to be disturbed. An after-hours number should be provided which can be contacted to lodge complaints, such as excessive dust from roads.	Contractor	Ongoing

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	9. Prohibited activities include: <ul style="list-style-type: none"> <li>• Hunting</li> <li>• Fires</li> <li>• Litter</li> <li>• Collection of plants, including medicinal plants except when required with the relevant permits and overseen by the ECO. Medicinal plants may be collected if vegetation of a specific area will be destroyed and there are so many plants it is impractical to rescue all of them. Collection must be strictly supervised by the ECO.</li> <li>• No driving off-road</li> <li>• No interfering with fauna, including indigenous animals</li> <li>• No use of natural water resources (washing, swimming or washing of clothes)</li> <li>• No graffiti or other markings on natural features such as rocks.</li> <li>• The ablution facilities provided must be used, not the open space.</li> </ul>	Contractor	During construction
	10. Activities in the surrounding open undeveloped areas must be strictly regulated and managed.	Contractor	During construction
Sensitive areas	1. Due to the steep slopes on site, pollution can easily be transferred downslope to the sensitive riverine environment, and this must therefore be prevented.	Contractor	During construction
	2. No entry or dumping into / onto the sensitive areas and buffer zones is allowed.	Contractor	During construction
	3. Any no-go areas should be demarcated, and workers should be informed that no activities are to occur in these areas. The construction zone should be fenced off and clearly demarcated to prevent access to sensitive areas.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	4. No new access roads are permitted to cross the Aller River and/or encroach into the riparian zones and 32m buffer.	Contractor	During planning and construction
	5. The buffer zones must be clearly demarcated by a land surveyor as part of site setup prior to construction commencing.	Contractor	Prior to construction
	6. The demarcations must be undertaken using orange hazard netting and / or stakes with silt fencing at required impact areas. These must be regularly maintained throughout the construction phase.	Contractor	Prior to construction
	7. All construction camps should be located outside of the allocated buffer zones, preferably on previously disturbed areas, within the study area	Contractor	Prior to construction
	8. Care must be taken not to remove indigenous vegetation unnecessarily from the sensitive riparian areas and their associated buffers during all phases of construction.	Project Developer / Project Manager	During design, prior and during, construction
	9. The site must be inspected frequently (daily during the construction phase and monthly thereafter) to ensure that the integrity sensitive areas is maintained at all times.	Contractor	During construction
	10. Additionally, readiness and professional execution of the clean-up contingency plan as well as the mitigation and rehabilitation is essential to ensure that the integrity of the sensitive areas is not compromised.	Contractor	During construction
<b>7.2.3. Camp Site, Equipment, Vehicle Maintenance Yard and Secured Areas</b>			
Construction Camp Site	1. On-site accommodation will not be allowed. No persons, other than a night-watchman / security guard, may stay overnight at the construction camp.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	2. To minimise standing water and soil erosion, the contractor must monitor and manage stormwater within the camp site area.	Contractor / ESO	During construction
	3. Eating areas must be serviced and cleaned daily to ensure the highest possible standards of hygiene and cleanliness.	Contractor	During construction
	4. The Contractor must ensure that the camp and working areas are always kept clean and tidy, in line with good housekeeping practices.	Contractor / ESO	During construction
Sanitation	1. Chemical toilets must be maintained in a clean state. Provide portable chemical toilets at the ratio of 1 toilet per 15 workers. All temporary/portable toilets must be secured to the ground to the satisfaction of the PM to prevent them from toppling over or being blown over by wind.	Contractor / Project manager	During construction
	2. Regarding construction phase sanitation – portable chemical toilets should be made available to site personal and should be located + - 30m away from sensitive environments. Waste from the toilets should be collected and disposed of appropriately by a waste contractor.	Contractor / Project manager	During construction
	3. No spillage must occur when the toilets are cleaned or emptied and that the contents are removed from the site. The contractor/service provider is to provide proof that the toilets contents are disposed of at a registered facility.	Contractor / Project Manager	During construction
	4. Under no circumstances may open areas or the surrounding bush be used as a toilet facility.	Contractor	During construction
	5. Temporary toilet facilities and sanitation facilities must be serviced weekly and locked from casual access by local communities and general public.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Waste Management	1. The Contractor must ensure that all litter is collected from the work and camp areas daily.	Contractor	During construction
	2. Bins and/or skips must be emptied weekly and waste must be disposed of at a registered landfill site. Waybills for all such disposals are to be kept by the Contractor for review by the ECO.	Contractor / ECO	During construction
	3. A registered chemical waste company must be used to remove waste from chemical toilets on site.	Contractor	During construction
	4. Any effluent containing oil, grease, or other industrial substances must be collected in a container with a leak-proof lid and removed from the site, either for resale or for disposal at a hazardous waste facility.	Contractor	During construction
	5. No grey water runoff or uncontrolled discharges from the site/working areas (including wash down areas) to the Aller River will be permitted.	Contractor	During construction
	6. Prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses and/or stormwater infrastructure.	Contractor	During construction
	7. During all phases of the construction, all waste should be removed to an appropriate waste facility and under no circumstance should waste materials or contaminants be discharged into the environment or buried.	Contractor	During construction
	8. Washing and cleaning of equipment should also be done within berms or bunds, in order to trap any cement/sediment and prevent excessive soil erosion. These sites must be re-vegetated after construction has been completed.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Equipment, vehicles & storage	1. Storage of material, chemicals, fuels etc. must not pose a risk to the surrounding environment and this includes surface and groundwater. Such storage areas must be located outside the 1:100-year floodlines of any watercourse and must be fenced to prevent unauthorised access onto the area. Temporary bunds must also be constructed around chemical or fuel storage areas to contain possible spillages.	Contractor	During construction
	2. No construction or storing of materials should be located outside of the defined layout area. These areas should be demarcated prior to any activities commencing and personnel instructed of the rules to stay out of these areas (unless clearing alien invasive plants).	Contractor	Ongoing
	3. The choice of location for storage areas must be located more than 50m away from watercourses. Storage areas must be on level ground.	Contractor	During construction
	4. Plant and equipment must be maintained to prevent spillage of oil, diesel, fuel or hydraulic fluid. The Contractor must repair or withdraw equipment or machinery from use if they consider these to be polluting and irreparable.	Contractor	During construction
	5. Suitably covered receptacles must always be available and frequently placed for the disposal of waste oils and greases. All used oils, grease or hydraulic fluids must be placed therein, and these receptacles must be removed on a consistent basis for recycling.	Contractor	During construction
	6. No smoking is allowed in the vicinity of storage or dispensing areas.	Contractor	During construction



## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	7. Fuel decanting and refuelling must take place within the construction camp only. 50kg of hydrocarbon absorbent must be placed at the construction camp for the handling of accidental spillage.	Contractor	During Construction
	8. Implement preventative maintenance system to ensure that work vehicles are maintained in an acceptable condition. This would involve routinely checking vehicles for leaks before construction begins; and not allowing vehicles with significant leaks to operate or be repaired within the construction site. Ideally, vehicle maintenance and washing occurs in garages and wash facilities, not on active construction sites.	Contractor	Prior to construction and during construction
	9. Re-fuelling areas for vehicles should be bunded and located away from water resources and sensitive environments to prevent any accidental spillage contaminating soil or seeping into groundwater aquifers. All servicing area runoff should be directed towards a fully contained collection sump for recovery and appropriate disposal.	Contractor	During Construction
	10. The flow of water resulting from cleaning construction vehicles and equipment, must be discharged to the sanitary sewer and is not allowed in storm drains. When cleaning greasy equipment or trucks, a special cleaning area should be designated and equipment installed to capture, pre-treat, and discharge the wash water to the sanitary sewer.	Contractor	During Construction
	11. Instructional signs that prohibit changing vehicle oil, washing with solvents, and other activities should be posted in non-wash areas.	Contractor	During Construction
	12. Sumps or drain lines should be installed to collect wash water for treatment and discharge to the sanitary sewer.	Contractor	During Construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Handling of Hazardous Materials	1. All concrete mixing must take place at designated areas with an impermeable surface e.g. concrete, tarpaulin.	Contractor	During construction
	2. Hazardous storage areas must be 110% bunded with an impermeable liner to protect groundwater quality.	Contractor	During construction
	3. Excess concrete, bituminous product, etc. may not be dumped on site or within vacant areas. These must be disposed to a licensed waste disposal site or re-used where feasible.	Contractor	During construction
	4. No vehicles transporting concrete to or compacting asphalt or any other bituminous product on the site may be washed on site without proper wastewater management.	Contractor	During construction
	5. Lime and other powders must not be mixed during excessively windy conditions.	Contractor	During construction
	6. All hazardous substances required for vehicle maintenance and repair must be stored in sealed containers for disposal to a registered waste disposal site.	Contractor	During construction
	7. Hazardous substances / materials are to be transported in closed / sealed containers.	Contractor	During construction
	8. Drums / tanks must be safely and securely stored in the construction camp in a location as far as possible from any stream.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	9. In the event of a pollution incident on site the ESO and ECO must: <ul style="list-style-type: none"> <li>• Ensure the immediate implementation of reasonable measures to contain and minimise the impacts of the incident; (E.g. By using a spill kit to contain and collect the material together with any contaminated soil and be disposed as hazardous waste).</li> <li>• Notify all persons as per legal requirements (NEMA, NEMWA &amp; NWA) if applicable and approved communication / incident procedure;</li> <li>• Undertake clean up procedures immediately;</li> <li>• Record the incident in the Environmental Incident Register; and</li> <li>• Implement measures to prevent similar incidents from occurring in the future.</li> </ul>	Contractor	During construction
	10. In the case of a spill of hydrocarbons, chemicals or bituminous material the spill must be contained and the material together with any contaminated soil collected and disposed of as hazardous waste.	Contractor	During construction
	11. The Contractor will be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.	Contractor	During construction
	12. The Contractor (and suppliers) must ensure that all materials are correctly secured to ensure safe passage between destinations.	Contractor	During construction
Stockpile Management	1. Stockpiles must not be located where natural drainage pathways will be obstructed / impeded.	Contractor	During construction
	2. Stockpiles must not exceed 2m in height.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	3. Stockpiles exposed to windy conditions must be wetted to prevent windblown particles or in the case of heavy rain, must be covered/provided with containment to prevent contaminated run-off. Rocks can be stacked as walls to prevent the loss of top and subsoil on cut or fill banks.	Contractor	During construction
	4. Stockpiles must be kept clear of weeds and alien vegetation growth by regular weeding.	Contractor	During construction
	5. Do not allow stockpiling of any material within the 100m of any residential areas or 20m of any “no go” area.	Contractor	During construction
	6. Unprotected stockpiles are very prone to erosion and therefore must be protected. Small stockpiles can be covered with a tarp to prevent erosion. Large stockpiles should be stabilised by erosion blankets, seeding, and/or mulching.	Contractor	During construction
<b>7.2.4. Access to Construction Site</b>			
Maintenance of Site Access and Impacts from Haulage	1. The liberation of dust into the surrounding environment must be effectively controlled using water sprays, fabric containment or curtains, where required.	Contractor	During construction
	2. If required, staff must be employed to clean spilt material onto the access roads.	Contractor	During construction
	3. Pedestrian and vehicle access must be restricted during construction so as to control access to otherwise potentially dangerous excavations and materials.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
<b>7.2.5. Earthworks, including Demolition and Construction</b>			
Earthworks	1. All cut and fill earthworks must be carried out in accordance with the current SANS/SABS 1200 series.	Contractor	During construction
	2. Earthworks must be completed in accordance with the scope of works and designs.	Contractor	During construction
	3. Construction areas must be cordoned off and demarcated to prevent incidental public access.	Contractor	During construction
	4. Construction clearing must be phased, the entire footprint of the proposed development must not be cleared and left exposed.	Contractor	During construction
	5. By minimising the area of soil disturbance and the number of earthworks required the impact of construction and operations (especially the sedimentation of water bodies) can be greatly reduced.	Contractor	During construction
	6. In areas where shallow groundwater occurs, excess water can be drained/dewatered by means of geo-drains. This will help to prevent the impact on foundations, due to rising and lowering of shallow water tables. The necessary authorisations must be sought after from the DWS.	Project Developer / Project Engineer	During design and prior to, construction
<b>7.2.6. Fire Management</b>			
Fires Prevention & Control	1. Fires will only be allowed in facilities or equipment specially constructed for this purpose at the construction camp.	Contractor	During construction
	2. No open fires or uncontrolled fires are permitted on site.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	3. Ensure that there is basic firefighting equipment available on-site. Firefighting equipment must be in working order and serviced to-date.	Contractor	During construction
	4. The workforce must be made aware of fire prevention and firefighting measures.	Contractor	Prior to and during construction
	5. Any flammable material must be stored in areas where it does not present a fire hazard to surrounding vegetation and people. This includes bitumen, thinning agents, petrol, LPG containers, fuels and oils.	Contractor	During construction
	6. Burning of fire breaks is to be carefully planned and managed with the assistance of the local Fire Department.	Contractor	During construction
	7. Set smoking areas must be designated. Smoking outside these designated areas is prohibited.	Contractor	During construction
	8. The Contractor must ensure that the telephone number of the local Fire and Emergency Service are displayed at the site offices.	Contractor	During construction
<b>7.2.7. Conservation of Resource and Natural Environment</b>			
Topsoil	1. The topsoil obtained (i.e. the top 30-50 cm of soil) from site clearing must be stored in stockpiles no higher than 1m and used during rehabilitation.	Contractor	During construction
	2. Undertake the stripping of topsoil in a manner that minimises erosion by wind or runoff.	Contractor	During construction
	3. Subsoil and topsoil must not be mixed with other soils during stripping, excavation, reinstatement and rehabilitation.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	4. Exposed areas of soil must be stabilised as soon as possible through revegetation or allowing natural growth to continue.	Contractor and ECO	During construction and after construction
	5. Any topsoil removed during construction should be stockpiled to use for gardens	Contractor	During construction
Vegetation Clearing	1. Where possible, plants should be cut down to ground level instead of being removed completely to stabilise the soil during land-clearing operations.	Project Developer / Contractor / ECO.	During, construction
	2. All cut vegetation must be disposed of off-site at an approved disposal site.	Contractor	During construction
	3. There must be no burning on site under any circumstances.	Contractor	During construction
	4. Should there be a need to disturb indigenous trees in a natural forest and/or protected tree species in terms of the NFA, a tree application form must be forwarded to DAFF Offices.	Project Developer	During Construction
	5. All manually cleared AIPs must be disposed of carefully and must not be dumped in any areas of indigenous vegetation, even temporarily.	Contractor	Ongoing
	6. No mass clearing of vegetation should be done, but rather vegetation should be cleared as work progresses. No large areas should be cleared unless surfacing occurs immediately after.	Contractor	Ongoing
	7. Vegetation cleared for construction must not be dumped in intact vegetation, even temporarily. Indigenous vegetation cleared may be mulched and used for rehabilitation.	Contractor	Daily

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	8. Site fingerprinting involves clearing only those areas essential for conducting construction activities, leaving other areas undisturbed. The proposed limits of land disturbance should be physically marked off to ensure that only the land area required for buildings, roads, and other infrastructure is cleared. Existing vegetation, especially vegetation on steep slopes, should be avoided and preserved through fencing, signage, and site plan notations.	Contractor/ Project Developer	During construction
<b>7.2.8. Pollution Control Measures</b>			
Pollution control measures	1. Material Safety Data Sheets (MSDS) for on-site chemicals, hydrocarbon materials and / or waste and hazardous substances must be readily available onsite.	Contractor	During construction
	2. The Contractor must prepare an emergency procedure and a procedure for the management e.g. storage, decanting and disposal of hazardous substances.	Contractor	Prior to and during construction
	3. Rainwater collected within containment facilities can be released, if not contaminated. If the contents of containment facilities are contaminated, the material must be removed and disposed of as hazardous waste.	Contractor	During construction
	4. The contractor must store, handle and transport all materials that could adversely affect the environment, in accordance with material safety data sheet.	Contractor	During construction
	5. In the case of a spill of hydrocarbons, chemicals or bituminous material the spill must be contained and the material together with any contaminated soil collected and disposed of as hazardous waste.	Contractor	During construction



## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	6. In the event of a pollution incident on site the Site Environmental Officer and ECO must: <ul style="list-style-type: none"> <li>• Ensure the immediate implementation of reasonable measures to contain and minimise the impacts of the incident;</li> <li>• Notify all persons as per legal requirements (NEMA, NEMWA &amp; NWA) if applicable and approved communication / incident procedure;</li> <li>• Undertake clean up procedures immediately;</li> <li>• Record the incident in the Environmental Incident Register; and</li> <li>• Implement measures to prevent similar incidents from occurring in the future.</li> </ul>	Site Environmental Officer / ECO / Contractor	During construction
	7. All general waste must be removed from the work areas on a weekly basis and disposed to suitable waste receptacles for disposal to the registered waste disposal site.	Contractor	During construction
<b>7.2.9. Solid Waste Management</b>			
General Waste	1. Waste must be dealt with in accordance with the National Waste Management Strategy namely reduce, re-use and recycling, with disposal to landfill being a last resort.	Contractor	During construction
	2. Solid waste generated must be disposed of at the nearest registered landfill site.	Contractor	During construction
	3. Different waste bins, for different waste streams, must be provided to ensure correct waste separation.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	4. All non-recyclable solid waste must be disposed of at a permitted landfill site, and proof must be available and presented to the ECO during site visits.	Contractor	During construction
	5. Inert building rubble used for levelling and infilling purposes must not exceed the threshold of 25 tons, as per NEM: WA Regulation 718 – Category A “disposal of waste” (as amended in November 2013).	Contractor	During construction
	6. Littering is prohibited and dumping of any waste is not allowed in undeveloped, open areas or neighbouring properties.	Contractor	During construction
	7. No waste material is to be burned, buried or disposed of in any area that is not a licensed landfill site.	Contractor	During construction
	8. Several waste receptacles must be available for waste disposal and prevention of littering.	Contractor	During construction
	9. Waste storage facilities must be regularly inspected and replaced when full.	Project Developer / Project Engineer	During design and prior to, construction
	10. Hazardous waste must be treated as such and must not be mixed or combined with general waste. Refer to Glossary of Terms page IV for examples.	Contractor	During construction
	11. Waste bins must be cleaned out when full or at least on a weekly basis to prevent windblown waste and/or visual or odour disturbance.	Contractor	During construction
	12. No solid waste to be disposed of on site and should be removed from site regularly.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	13. Major spills will require emergency monitoring procedures to be in place, the schedule of which will depend on the severity of the spill and the associated volumes.	Contractor	During construction
	14. Bins should be provided to all areas that generate waste e.g. worker eating and resting areas and the camp site. General refuse and construction material refuse should not be mixed.	Contractor	During construction
	15. Animal proof bins should be provided for waste generated by workers and disposed of in a waste dump. Waste should not be dumped in open space areas, buried or burned but disposed of in an appropriate waste facility.	Contractor	During construction
	16. Ensure that appropriate solid waste disposal facilities are provided, and adequate signage is provided for all solid, liquid and hazardous waste types.	Contractor	During construction
	17. Keep dumpsters and other containers securely closed, store containers under cover, and cover stockpiled materials, such as gravel and wood chips with plastic sheeting.	Contractor	During construction
Sewage / Wastewater and Infrastructure	1. Discharge of waste from temporary chemical toilets into the environment must be strictly prohibited.	Contractor	During construction
Hazardous Waste	1. Hazardous waste is to be disposed of at a Permitted Hazardous Waste Landfill Site. The contractor must provide proof of disposal.	Contractors / ECO	During construction
	2. Hazardous waste bins must be clearly marked, stored in a contained area (or have a drip tray) and covered (either stored under a roof or the container must be covered with a lid).	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	3. Transportation of hazardous materials must be in accordance with the National Road Traffic Act and relevant SANS Codes of Practice. Requirements including transporting the hazardous materials in sealed containers or bags, as well as using suitable cover to prevent the materials from spilling over the side of the vehicle during transit.	Contractor	During construction
	4. If soil contamination occurs (such as due to a spill) the soil should be removed from the site and disposed of appropriately.	Contractor	During construction
	5. The handling of hazardous and non-hazardous materials, such as concrete, solvents, asphalt, sealants, and fuels, as infrequently as possible and observe all federal, state, and local regulations when using, handling, or disposing of these materials.	Contractor	During construction
	6. An effective response plan must be in place and personnel must be ready to mobilise in the event of a spillage to reduce the environmental effects of an oil or chemical spill.	Contractor	During construction
	7. Spill control devices such as absorbent snakes and mats should be placed around chemical storage areas, and they can be used in an emergency to contain a spill.	Contractor	During construction
	8. Paints should be mixed where spills can be recovered or cleaned easily, and an impermeable ground cloth should be used while painting.	Contractor	During construction
	9. Spill control devices such as absorbent mats should be placed around chemical storage areas, and they can be used in an emergency to contain a spill.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
<b>7.2.10. Erosion, Sedimentation Management, Excavations and Geotechnical Aspects</b>			
Erosion	1. Suitable erosion control measures must be implemented in areas sensitive to erosion i.e. storm water discharge points, exposed areas and embankments. These measures could include: <ul style="list-style-type: none"> <li>• The suitable use of sandbags or soil saver;</li> <li>• The prompt rehabilitation of exposed embankment areas (e.g. with indigenous vegetation);</li> <li>• The removal of vegetation, only as it becomes required for work to proceed;</li> <li>• Taking suitable precautions in terms of design, construction and earthworks.</li> </ul>	Contractor	Prior to and during construction
	2. Soil stockpiling areas must be situated at least 50m away from the seasonal drainage lines.	Contractor	During construction
	3. Onsite soil stockpiles must not be placed adjacent to any watercourses (at least 7 meters distance) as it could lead to possible siltation and sedimentation.	Contractor	During construction
	4. Wherever possible, existing vegetation cover should be maintained during the construction phase. The unnecessary removal of groundcover from the slopes must be prevented.	Contractor	During construction
	5. It is recommended that the clearing activities be done in phases/zones to limit mass removal of vegetation that may have detrimental impacts to the environment.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	6. All bare slopes and surfaces to be exposed to the elements during clearing and earthworks must be protected against erosion using rows of sandbags and/or silt fences to break the energy of surface flows. Alternatively, the exposed slopes must drain into small temporary stormwater and silt traps/ponds.	Contractor	During construction
	7. Once shaped, all exposed/bare surfaces and embankments must be re-vegetated as soon as possible with indigenous, fast-growing, and soil-binding vegetation.	Contractor	During construction
	8. If re-vegetation of exposed surfaces cannot be established immediately due to phasing issues, temporary erosion and sediment control measures must be established along the contours at regular intervals to slow runoff and capture eroded soil.	Contractor	During construction
	9. Discharge of stormwater must be slowed down and diffused through installing appropriate discharge infrastructure such as attenuation ponds and/or soak away.	Contractor	During construction
	10. All runoff to be collected and channelled to discharge via surface spreaders into drainage lines.	Contractor	During construction
	11. Excavators should be used instead of bulldozers in areas sensitive to erosion (e.g. steep areas and unstable soils).	Contractor	During construction
	12. Gullies and other areas of active erosion should be stabilised (using catch water drains, raising headwalls or providing protective measures including grassing, stone pitching, concrete paving or gabions/ mattresses) and rehabilitated to minimise sediment entering the aquatic resource from these sources.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	13. Grass and legume seeding are a form of revegetation of bare soils used to prevent erosion. Native plants, domesticated native plants and introduced agronomic species are all useful for revegetation.	Contractor	Rehabilitation
	14. Mulching is an erosion control practice that uses materials such as grass, hay, wood chips, wood fibres, straw, or gravel to stabilize exposed or recently planted soil surfaces. In addition to stabilising soils, mulching can reduce stormwater velocity, improve the infiltration of runoff and add nutrients to the soil (instead of using fertiliser).	Contractor	During construction
	15. The site is a geomorphic spur. It is generally sloping to the north but more steeply closer to the Aller River. Consequently, the upper portion is relatively more gently sloping and, according to the layout plan, the area to be developed. Nevertheless, erosion, soil loss and downslope sedimentation is possible and needs to be mitigated against.	Contractor	During construction
	16. Establishing perimeter sediment controls. This can be achieved through the installation of sediment fences and swales along downslope verges of the construction site to minimise dirty water generation.	Contractor	During construction
	17. Where steeper slopes occur, these should be protected and stabilised using geotextiles, hydroseeding or any other suitable product designed for the purpose to slow down the movement of surface water runoff.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	18. Sandbags should be utilised as a temporary diverting barrier downslope of excavation areas. The sandbags should be placed in order to minimize surface runoff ensuring the sensitive areas situated downslope does not incur any impacts as a result of sedimentation and erosion. Sandbags used to temporarily divert water should always be in good condition and inspected regularly.	Contractor	During construction
	19. Soil excavated during construction should be piled within a stipulated area away from any sensitive environment. The soil should be kept in stockpiles and must be situated upslope or conveniently placed to prevent sedimentation of the sensitive environments.	Contractor	During construction
	20. Soil stockpiles must be protected from erosion, surrounded by suitable earthen buns and covered by erosion control blanket to prevent the transfer of sediment into sensitive areas.	Contractor	During construction
	21. All temporary and permanent erosion and sediment control structures must be monitored for the duration of the construction phase and repaired immediately when damaged. Temporary erosion measures must only be removed once vegetation cover has successfully re-colonised.	Contractor	During construction
Excavations	1. Excavations must be undertaken carefully incorporating proper drainage and considering weather conditions. If heavy rains are expected excavations must be put on hold.	Contractor	During construction



## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	2. During excavation soil should be excavated one layer at a time and stored in separate stockpiles so they can be returned in their natural order when the area is backfilled. This improves soil functions and improves the template for plant growth.	Contractor	During construction
	3. When excavated areas are backfilled the surface must be level with the surrounding land surface, to minimise soil erosion from the areas when the excavation is complete.	Contractor	During construction
<b>7.2.11. Water Management</b>			
Stormwater and Surface Water	1. Temporary cut off drains and berms must be implemented where required to capture storm water and promote infiltration.	Contractor	During construction
	2. Wherever possible, existing vegetation cover should be maintained during the construction phase. The unnecessary removal of groundcover from slopes must be prevented, especially on steep slopes.	Contractor	During construction
	3. Clearing activities should only be undertaken during permitted weather conditions, when possible. If heavy rains are expected, clearing activities should be put on hold. In this regard, the contractor must be aware of weather forecasts.	Contractor	During construction
	4. Earth, stone and rubble is to be disposed of so as not to obstruct natural water pathways over the site. i.e.: these materials must not be placed in stormwater channels, drainage lines or rivers.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	5. All bare slopes and surfaces to be exposed to the elements during clearing and earthworks must be protected against erosion using rows of hay-bales, sandbags and/or silt fences to break the energy of surface flows. Alternatively, the exposed slopes must drain into small temporary stormwater and silt traps/ponds.	Contractor	During construction
	6. Discharge of stormwater must be slowed down and diffused through installing appropriate discharge infrastructure as outlined in the Stormwater management plan.	Contractor	During construction
	7. All temporary and permanent erosion and sediment control structures must be monitored for the duration of the construction phase and repaired immediately when damaged. Temporary erosion measures must only be removed once vegetation cover has successfully re-colonised.	Contractor	During construction
	8. Regular checking and maintenance of temporary stormwater management system are highly encouraged to ensure efficient flow of water after the rainfall events and to prevent surface water ponding.	Contractor	During construction
	9. Pooling of water must be minimised to reduce erosion.	Contractor	During construction
Water Quality	1. All polluted run-off must be prevented or treated to acceptable water quality before being discharged into the storm water system.	Contractor	During construction
	2. Do not locate the equipment and vehicle storage facility within the 1:100-year floodline, or within a horizontal distance of 32m (whichever is greater) of any of the drainage areas / watercourse.	Contractor	During construction
	3. Ablutions should be provided onsite, at least one for every 15 workers, and should be located at least 32m away from the edge of the riparian zone.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	4. No heavy-duty equipment should be stored within the watercourses or riparian zone but in designated areas.	Contractor	During construction
	5. Regularly check vehicles, machinery and equipment operating on site, to ensure that none have leaks or cause spills of oil, diesel, grease or hydraulic fluid.	Contractor	During construction
	6. Any larger spills should be reported to the Environmental Control Officer (ECO) and the relevant authorities (DWS) immediately, with specialists appointed to oversee the clean-up operations.	Contractor	During construction
	7. No refuelling should occur within 32m of the watercourses and riparian zones.	Contractor	During construction
	8. Confine concrete mixing to specifically designated area outside of the riparian areas.	Contractor	During construction
	9. Do not dispose of waste of any nature, or any foreign material into any watercourses or associated buffer.	Contractor	During construction
	10. All discard (including contaminated soils) should be removed and the site should be cleared and levelled (although not compacted) while ensuring not to spread discard material over topsoil. All contaminated soils must be disposed of at a registered disposal facility; Bins should be provided to all areas that generate waste e.g. worker eating and resting areas and the camp site. General refuse and construction material refuse should not be mixed.	Contractor	During construction
	11. Washing of clothes, equipment or machinery within any watercourse is prohibited.	Contractor	During construction
	12. Placing of sediment traps, implementation of the on-site waste management plan to collect and contain any oils spills and rehabilitation of natural vegetation.	Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	13. Site staff is not permitted to use any stream, river, open water body or natural water source adjacent to or within the designated site for any purpose including bathing, washing of clothing or for any construction or related activities.	Contractor	During construction
	14. Spillages within bunds containing hazardous liquids must be cleared by an approved specialist waste contractor. The ESO must inform the ECO of all spillages as well as the means used to clean them up.	Contractor / ESO	During construction
<b>7.2.12. Air Quality</b>			
Air Quality	1. Removal of vegetation must be prevented until such time as construction is required.	Contractor	During construction
	2. All exposed surfaces must be re-vegetated and/or stabilised as soon as is practically possible.	Contractor	During and after construction
	3. No burning of waste, such as plastic bags, cement bags and litter, is permitted.	Contractor	During construction
	4. Use of dust controls methods such as controlling vehicle speed, wetting or screening of stockpiles and the mixing of chemicals must be ensured to minimise excessive dust liberation.	Contractor	During construction
	5. Should excessive vehicle emissions be observed, the required maintenance must be done, or the equipment removed from site.	Contractor	During construction
	6. A complaints register must be provided to report any excessive dust incidents.	Contractor	During construction
	7. Contractors must make alternative arrangements (other than fires) for cooking and / or heating requirements. LPG gas cookers may be used provided that all safety regulations are followed.	Contractor	Prior to construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	8. Prevent the excavation, handling and transport of erodible materials under high wind conditions.	Contractor	During construction
<b>7.2.13. Noise</b>			
Noise	1. Construction activities must be undertaken according to normal working hours approved by MET Developments.	Contractor	During construction
	2. Machinery and vehicles are to be kept in good working order for the duration of the project to minimise noise nuisance.	Contractor	During construction
	3. Construction vehicles and equipment generating excessive noise must be fitted with suitable noise abatement measures maintenance undertaken or replaced.	Contractor	During construction
	4. Construction workers must be provided with proper PPE i.e. ear plugs at activity areas where excessive noise is generated.	Contractor	During construction
	5. A complaints register must be provided to record any complaints regarding excessive noise.	Contractor	During construction
	6. Noise pollution must be minimised to ensure faunal inhabitants are not stressed. Migration of species may have disastrous effects on the food web due to the interdependence of inhabitants within the system. Incorporation of suitable sound proofing material within future developments may help to minimise noise and limit human interference in the system.	Project Developer / Contractor / ECO.	During, construction
<b>7.2.14. Protection of Fauna and Flora, Vegetation and Wetland Area</b>			
Fauna and Flora	1. Contractors must ensure that no protected and red listed vegetation are removed or trimmed without the required authorisation from the Department of Agriculture, Forestry and Fisheries.	Contractor	During Construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	2. Should there be a need to disturb indigenous trees in a natural forests and/or protected tree species in terms of the NFA, a tree licence application form may be forwarded to DAFF offices.	Contractor	During Construction
	3. Indigenous vegetation outside the development footprint must be demarcated and protected by preventing access of construction vehicles and personnel into these areas, unless for rehabilitation and maintenance purposes.	Contractor	During Construction
	4. Any protected floral and faunal species will require permits for destruction or translocation.	Contractor	During construction
	5. All exotic species must be removed from the site and where possible revegetated with indigenous trees and shrubs that presently inhabit the area.	Project Developer / Contractor / ECO.	During Construction
	6. Care must be taken to prevent the introduction of alien plant species to the site and surrounding areas by removing the invasive plants onsite, as stipulated in the aspect below "Invader Plant Control".	Contractor	During Construction
	7. All large indigenous plant and sedge species must be conserved wherever possible.	Contractor	During Construction
	8. Disturbance to animals and their associated habitats (for example termite hills and bird nests) must be minimised by avoiding any interference or contact. If disturbance is unavoidable, these habitats must be removed with care to any adjacent habitat with similarity, following communication with the appointed ECO and ESO.	Contractor	During Construction
	9. Open trenches must be backfilled as soon as the infrastructure has been laid in order to prevent animals falling in or acting as a large open pit-fall trap (>2m deep).	Contractor	During Construction
	10. No natural vegetation is to be collected for use as firewood.	Contractor	During Construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	11. No animals are to be disturbed unnecessarily, shot, trapped or caught for any reason.	Contractor	During Construction
	12. No use of poisons should be allowed for the control of rodents. Control, if required, should be with traps (traditional mouse traps or live trapping). It is recommended that owl houses are placed within the open space to utilise this natural predator for rodent control.	Management body	During construction and after construction
	13. All NEMBA category 1a and 1b invasive alien plant species should be removed and disposed of appropriately prior to construction. The construction site should be inspected regularly during the construction phase to identify and remove emerging Invasive Alien Plant species.	Botanical expert	Prior to and during construction
	14. The removal of alien vegetation should be undertaken manually by hand near sensitive areas. The use of heavy machinery should be kept to minimum near sensitive environments.	Contractor	Prior to and during construction
	15. Fauna found within the construction zone should be moved to the closest natural or semi-natural habitat zone away from the construction site.	Contractor	Prior to and during construction
	16. A plant search and rescue must be conducted to ensure maximum survival of all conservation important species.	Botanical expert	Prior to and during construction
	17. No collection of indigenous plants should be allowed on site except for the relevant experts for scientific study or as part of rehabilitation and search and rescue.	Contractor	Prior to and during construction
	18. The open space area must be managed in accordance with the Open Space Management Plan.		

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Invader Plant Control	1. Prevention is the first step to avoid the introduction of alien plant species.	Contractor	Prior to and during construction
	2. Invader species and weeds must be removed and disposed of in accordance with existing legislation and the Alien Invasive Management Plan.	Contractor	Prior to and during construction
	3. Monitoring is essential, and any new invasive species should be recorded, and a control and management plan drawn up and implemented for these species.	Contractor	Prior to and during construction
	4. Although removal of alien species will mostly require removal by hand and the use of saws, the use of herbicides and pesticides may be required. Only specified and approved herbicides and pesticides must be used for control of alien and invasive species. Manufacturer's instructions must be followed when using chemical methods, especially in terms of quantities, time of application etc.	Contractor	Prior to and during construction
	5. Any soil stockpiles that have become invaded by IAPs should be cleared through manual control methods (weeding).	Contractor	Weekly
	6. AIP species must be controlled throughout the site footprint during the construction process.	Contractor	Monthly
	7. Applications of herbicides and pesticides must be applied by certified, approved and trained employees or contractors.	Contractor	Prior to and during construction
	8. Clearing must be recorded through photographs.	Contractor	Prior to and during construction



## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	9. Clearing of alien species must be organised and approved and Clearing of indigenous vegetation must be restricted to the footprint of the site.	Contractor	Prior to and during construction
	10. Cleared areas that will not be surfaced for an extended period of time (over 2 weeks) should be stabilized with packed brush (from indigenous plants cleared from the site), or with jute pegged over the area.	Contractor	Weekly
	11. All manually cleared alien plants must be disposed of carefully and must not be dumped in any areas of indigenous vegetation, even temporarily.	Contractor	Prior to and during construction
	12. No mass clearing of vegetation should be done, but rather vegetation should be cleared as work progresses. No large areas should be cleared unless surfacing occurs immediately after.	Contractor	Prior to and during construction
	13. Any exposed construction areas that have become invaded can be sprayed with herbicides (only those that break down on contact with the soil).	Contractor	During Construction
	14. Mechanical Control for alien vegetation Ideally before the end of each growing season, these plants should be mechanically removed via slashing or mowing before the plants produce seeds (hand pulling may even be performed in the areas with limited soil disturbance).	Contractor	During Construction
	15. If chemical control (only registered herbicides) will be used, the testing of such chemicals should be included in the routine surface monitoring programmes.	Contractor	During Construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	16. Follow up visits for alien plants must involve carefully weeding out by hand every second month during the first growing season and reducing to every third to fourth month in the next season depending on extent of the re-growth. It is important to note that uprooting some species may result in soil disturbance and further germination of these species, so care and possibly reassessment on methodologies may need to occur.	Contractor	During Construction
	17. No burning of alien vegetation should be allowed, unless stated in the management programme.	Contractor	During Construction
	18. Areas that will be vegetated though rehabilitation or used as gardens must be done so following construction. No organic matter from outside the site should be used to encourage regrowth of vegetation.	Contractor	Monthly
	19. Areas where vegetation is required to be kept low (such as along power line servitudes), should be managed using weed eaters above the soil line to maintain the indigenous vegetation and reduce invasion potential.	Contractor	During Construction
	20. Species-specific control measures should be used. These are provided in this plan for dominant species recorded from the site. If any new species are recorded, best practice means of control must be researched and used.	Contractor	Monthly
	21. Introduction of alien plant species to the site should be prevented as far as practicable. Vehicles entering should be inspected, outside sources of soil and sand should be clear of invasive species.	Contractor	During Construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Wetland and Riparian	1. No abstraction of water from the wetlands should be allowed unless expressly authorised.	Project Developer / Project Manager / Project Engineer / ECO	During construction
	2. Any watercourses and riparian areas that are disturbed during the construction phase must be rehabilitated immediately. All disturbed areas must be addressed and then re-vegetated to the satisfaction of the ECO, as per the Rehabilitation Plan for the Aller River and associated wetlands.	Project Developer / Project Manager / Project Engineer / ECO	During construction
	3. The Bio- Monitoring Plan as per the Aquatic Assessment must be adhered too for water quality monitoring.	ECO/Developer	During Construction
<b>7.2.15. Areas of Specific Importance</b>			
Archaeological Sites	1. If an artefact on site is uncovered, work in the immediate vicinity must be stopped immediately and The KwaZulu-Natal Amafa and Research Institute should be contacted.	Contractor	During construction
	2. Contractors must prevent any person from removing or damaging any such article and must immediately, upon discovery thereof, inform the Applicant or ECO of such discovery.	Contractor	During Construction
	3. Approval must be obtained from Amafa-aKwaZulu-Natali, should there be the need to demolish any sites of archaeological and cultural significance. Demolition / construction work must only commence once Amafa's approval has being obtained.	Contractor	During Construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	4. No structures older than 60 years or parts thereof are allowed to be demolished, altered, or extended without a permit from the KZN or Amafa Research institute.	Contractor	During Construction
	5. No activities are allowed within 50m of a site, which contains rock art.	Contractor	During Construction
	6. Work may only resume once clearance is given in writing by an archaeologist.	Contractor	During Construction
	7. If a grave is uncovered on site all work in the immediate vicinity of the graves must be stopped and MET Developments and ECO informed of the discovery.	Contractor	Prior to and during construction
	8. Amafa must be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial.	Contractor	During construction
	9. The project proponent will, in the case of graves, together with the National Monuments Council, be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.	Contractor	During Construction
	10. Any excavations deeper than 1.5m will require a qualified palaeontologist to inspect the excavations.	Contractor	During Construction
<b>7.2.16. Public and Workforce Safety</b>			
General	1. Dedicated pathways (temporary) for pedestrians must be developed to ensure safe passage around construction activities.	Contractor	Prior to construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	2. Construction activities must be undertaken according to working hours stipulated by MET Developments.	Contractor	During construction
	3. A safety officer must be appointed who will continuously monitor safety conditions during demolition and construction activities.	Contractor	During construction
	4. Flagmen must be appointed and provide ample warning of road hazards, as and when required.	Contractor	During construction
	5. The workforce must be provided with enough potable water and under no circumstances are they to use untreated water from local watercourses for drinking.	Contractor	During construction
	6. Care must be taken with electrical connections. All connections must be treated as live until confirmed.	Contractor	During construction
Unprotected areas	1. Potentially dangerous / hazardous areas such as open pits and elevated unprotected areas must be demarcated and clearly marked such as danger tape and orange barricade netting.	Contractor	During construction
<b>7.2.17. Social Impacts</b>			
Disruption of Infrastructure and Services	1. Contractor's activities and movement of staff is to be restricted to designated construction areas.	Contractor	During construction
	2. Notification must be given to the public, if the construction causes any interruption, such as water service interruption or traffic congestion.	Contractor	Prior to and during construction
	3. Local communities or local community organisations must be given preference in supplying services and labour to the construction activities.	Contractor	Prior to construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
Visual	1. Lighting on the construction site must take into consideration commuters and the general public and be located to cause the least distraction, without compromising safety and security.	Contractor	During construction
<b>7.2.18. Monitoring, Reporting and Record Keeping</b>			
Environmental Monitoring and Record Keeping	1. Environmental monitoring must be undertaken by the Site Environmental Officer daily and by the ECO on a monthly basis.	Site Environmental Officer / ECO	During construction
	2. This monitoring must be undertaken in order to ensure compliance with all aspects or requirements of the EMPr.	Site Environmental Officer / ECO	During construction
	3. Contractors must provide proof of disposal of building rubble, domestic waste, industrial waste and hazardous waste to licensed waste disposal or recycling facilities.	Contractor	During construction
	4. The ECO must review and update the EMPr, as required.	ECO	During construction
Complaints register and environmental incident book	<p>1. Complaints received from the community or other I&amp;AP's must be registered and recorded by the Environmental Site Officer and brought to the attention of the ECO and contractors. All relevant parties must respond accordingly. The following information must be recorded in the case of any complaint/incident:</p> <ul style="list-style-type: none"> <li>• Time, date and nature of complaint;</li> <li>• Response and investigation undertaken; and</li> <li>• Corrective and preventative actions taken and by whom.</li> </ul>	Site Environmental Officer / ECO / Contractor	During construction

## CONSTRUCTION PHASE ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	2. All complaints received must be investigated and a response given to the complainant within 14 days.	ECO / Contractor	During construction

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

### 7.3. POST CONSTRUCTION PHASE AND REHABILITATIONS ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
<b>7.3.1. Construction Camp and Construction Areas</b>			
Camp Deconstruction and Rehabilitation of Construction Areas and Accesses	1. All remaining construction infrastructure and material / consumables must be removed.	Contractor	After construction
	2. The working servitude must be rehabilitated / reinstated once all planting of vegetation has been completed to rectify any damage that may have been caused by heavy machinery.	Contractor	After construction
	3. All spillage areas must be cleaned and/or remediated.	Contractor	After construction
	4. All remaining waste and litter must be collected and recycled and /or disposed to reputable contractors / licensed facilities.	Contractor	After construction
	5. The Contractor must arrange for the cancellation of all temporary services, including but not limited to chemical toilets and waste removal and disposal services.	Contractor	After construction
	6. Temporary fences, barriers and demarcations associated with the construction phase are to be removed from the site, unless stipulated otherwise by the Project Developer / Contractor / ECO. / Engineer.	Contractor	After construction
	7. All residual stockpiles must be removed to spoil or spread on site as directed by the Engineer.	Contractor	After construction
	8. The Contractor must repair any damage that the construction works has caused to neighbouring properties.	Contractor	After construction
	9. The Contractor is to check that all watercourses are free from building rubble, spoil materials, debris and waste materials.	Contractor	After construction



## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	10. No temporary works, stockpiles or other circumstances that could impede natural water movements or act to concentrate run-off must be removed.	Contractor	After construction
<b>7.3.2. Vegetation, Rehabilitation of Land, Rivers and Drainage Areas and Geotechnical Aspects</b>			
Rehabilitation	1. Rehabilitation of vegetation and land areas must be undertaken concurrently with construction activities where possible. Where concurrent rehabilitation is not possible, rehabilitation of relevant areas must be commenced with immediately on completion of construction activities and deconstruction of the construction contractor's camp.	Contractor	After construction
	2. The areas must be rehabilitated to its pre-establishment condition or agreed alternative, i.e. hardened areas ripped and vegetated.	Contractor	After construction
	3. All areas that have been disturbed by construction activities (including the construction camp area) must be cleared of alien vegetation and the vegetation must be disposed to a registered waste disposal site or re-use facilities.	Contractor	After construction
	4. On completion of all operations, the construction site must be cleared of any contaminated soil accordance with the soil management procedure.	Contractor	After construction
	5. Topsoil that has been stockpiled during construction must be applied to the area to undergo rehabilitation. The depth of the topsoil layer to be applied depends on the natural depth of topsoil in the area, and the amount of topsoil that may have been lost during construction.	Project Developer / Contractor / ECO. / Project Engineer	After construction

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	6. Vegetation rescued during the site establishment must be re-established under the guidance of the ecologist.	Project Developer / Contractor / ECO. / Project Engineer	After construction
	7. The area is to be revegetated by using indigenous vegetation as per specialist specification.	Project Developer / Contractor / ECO. / Project Engineer	After construction
	8. All excavations and test pits must be backfilled with in-situ material and the areas monitored for subsidence, which must be addressed if detected.	Contractor	After construction
	9. The bare ground must be seeded with a stabilising grass mix, suited to the conditions. The quantity of seed used will depend on the slope, with a steeper slope requiring a heavier application of seed. The seed mix must consist of pioneer grass species of the area and will also depend on what species are commercially available during the season required. The grass mix must consist of indigenous grasses adapted to the local environmental conditions.	Contractor	After construction
	10. The grass mix must consist of a mix of quick covering grasses (pioneer species), mat-forming grasses (e.g. <i>Digitaria eriantha</i> , <i>Chloris gayana</i> ) and tufted grasses (e.g. <i>Eragrostis curvula</i> ) to ensure prompt and adequate coverage of the exposed soil while long term stability of the grass sward is also achieved.	Contractor	After construction
	11. The areas which have been seeded must be watered sufficiently directly after seeding until the grass cover becomes established. Watering is to be done in a manner that ensures that no erosion of the topsoil and seed mix takes place.	Contractor	After construction
	12. If the grasses have not established after a period of two months after seeding, the areas must be reseeded. If required, another dressing of topsoil must be applied prior to seeding.	Contractor	After construction

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	13. Repair all erosion damage as soon as possible and in any case not later than six months before the termination of the Maintenance Period to allow for sufficient rehabilitation growth.	Contractor	After construction
	14. Slope stabilisation measures may be required in places where grass has not been able to establish and there is an erosion risk. The measures implemented depend on the situation and can be varied as required.	Contractor	After construction
	15. Regular monitoring of the rehabilitated areas must be conducted. Areas that show signs of erosion or where the vegetation has not established successfully must be repaired and / or re-vegetated.	Project Developer / Contractor / ECO. / Project Engineer	After construction
	16. Indigenous vegetation occurring within the remaining non-developed area/open space should be retained, rehabilitated through active rehabilitation. These areas should be managed as conservation areas and ecological corridor	Project Developer / Contractor / ECO. / Project Engineer	After construction
	17. The rehabilitation and restoration process should be supervised or overseen by qualified personnel	Project Developer / Contractor / ECO. / Project Engineer	After Construction
Alien Vegetation	1. All alien vegetation is to be removed and disposed of. Removal will, to a large extent, be done by hand. Saws may be required in certain cases and specific herbicides may be required (if used, the use of these must be strictly controlled).	Contractor	After construction
	2. Areas where vegetation is required to be kept low (such as along power line servitudes), should be managed using weed eaters above the soil line to maintain the indigenous vegetation and reduce invasion potential.	Contractor	After construction

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
	3. Areas that will be vegetated through rehabilitation or used as gardens must be done so following the conservation plan. No organic matter from outside the site should be used to encourage regrowth of vegetation.	Contractor	Construction and after construction
<b>7.3.3. Monitoring, Reporting and Record Keeping</b>			
Environmental Monitoring and Reporting	1. Environmental monitoring must be undertaken by the Environmental Site Officer daily and by the ECO on a monthly basis.	ESO / ECO	After construction and prior to operation of the site
	2. This monitoring must be undertaken in order to ensure compliance with all aspects or requirements of the EMPr and Environmental Authorisation.	Site Environmental Officer /ECO	After construction and prior to operation of the site
<b>7.3.4. Compliance and Close-out Audit of Construction and Post Construction Activities</b>			
Audit and Sign-off	1. A close-out audit must be conducted by the ECO following the post-construction and rehabilitation activities.	ESO / ECO	After construction and prior to operation of the site
	2. MET Developments must not sign-off on the project and make payment of the final invoice to contractors until the compliance audit is conducted by the ECO and 100% compliance to the EMPr has been achieved.	Project Developer / Contractor / ECO.	After construction and prior to operation of the site

## OPERATIONAL PHASE AND RELATED ACTIVITIES

### 7.4. OPERATIONAL PHASE AND RELATED ACTIVITIES

The aim of the Operational Environmental Management Plan (OEMP) is to provide an appropriate mechanism for the development's environmental management post the construction phases. This OEMP therefore provides a guideline and management system for all the components of the development that require ongoing management from an environmental perspective. To achieve this, the OEMP specifies the environmental management actions that the owners and occupants of land and buildings within the development must abide by during the operational phase of the development.

ENVIRONMENTAL ASPECT	ENVIRONMENTAL MEASURES AND ACTION PLANS	RESPONSIBILITY	TIMEFRAMES
<b>7.4.1. Body Corporate / Homeowners Association</b>			
General	1. Environmental conditions must be included into the body corporate or homeowner's association rules lodged with the deed's office.	Project Developer / Body Corporate	Ongoing
	2. A fee structure must be established and enforced for non-compliances. Penalties are to be determined according to the weight of the offence.	Project Developer / Body Corporate	Ongoing
	3. Open space areas should be maintained as corridors with no barriers (such as fences, and roads).	Project Developer / Body Corporate	Ongoing
	4. Access to the Regent Estate site, including non-developed areas must be strictly controlled, during the operational phase gates should be locked if they cannot be manned. All visitors should sign in at the site office, undergo induction, sign an indemnity and wear PPE.	Project Developer / Body Corporate	Ongoing
Erosion Management	1. Any signs of erosion must be immediately brought under control and revegetated after the source of the erosion has been dealt with.	Project Developer / Body Corporate	Ongoing

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

	2. Residents will be required to revegetate any disturbed surfaces around their properties.	Project Developer / Body Corporate	Ongoing
Noise and Dust Control	1. Any incidence of rowdy behaviour which legitimately disrupts the Regent Estate Development residents and surrounding landowners must be reported and positive solutions reached.	Project Developer / Body Corporate	Ongoing
	2. A complaints register will be made available for the lodging of complaints. These must be addressed timeously.	Project Developer / Body Corporate	Ongoing
Disruption to Traffic	3. A complaints register must be kept for traffic incidents and actions must be taken timeously to avoid conflict.	Project Developer / Body Corporate	Ongoing
<b>7.4.2. Renting agreements and Environmental Requirements</b>			
Renting / Property Agreements	1. All residents / tenants must comply with the relevant environmental conditions of the EMPr and ensure compliance with those requirements.	Project Developer / Body Corporate	Ongoing
	2. Environmental conditions must be included in all tenant and property agreements. This must include alien invasive management, waste and water management, etc.	Project Developer / Body Corporate	Ongoing
	3. All residents are to be aware of potential environmental problems and ensure they show adequate consideration of these issues.	Project Developer / Body Corporate	Ongoing
	4. An environmental information pack must be provided to all new owners and tenants.	Project Developer / Body Corporate	Ongoing

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

### 7.4.3. Conditions for Non-Compliance

Residents / Tenants and Visitors	1. Those found not adhering to the Operational Phase of the EMPr are liable for penalties.	Project Developer / Body Corporate	Ongoing
	2. Visitors not adhering to these regulations and rules may be penalized in the form of fines, or denial of future access depending on the severity of the offence.	Project Developer / Body Corporate	Ongoing
	3. Access to Regent Business Development must be strictly controlled, during the operational phase gates should be locked if they cannot be manned. All visitors should sign in at the site office, undergo induction, sign an indemnity and wear PPE.	Contractor	Ongoing

### 7.4.4. Environmental Training & Awareness

Environmental Awareness	1. The body corporate must ensure that the conditions of the EMPr are adhered to. Should the contractor require clarity on any aspect of the EMPr the Contractor must contact the ECO for advice.	Project Developer / Body Corporate	Ongoing
	2. Training must be provided to any staff and management working on site with regards to environmental management and sensitivity.	Project Developer / Body Corporate	Ongoing
	3. Use must be made of environmental awareness posters and information boards on site around sensitive areas.	Project Developer / Body Corporate	Ongoing

### 7.4.5. Construction of New Residential Developments

Requirements	1. All contractors and developers must comply with all conditions within the construction phase for new developments.	Project Developer / Body Corporate	Ongoing
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## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

### 7.4.6. Management of Conservation Areas

Protection of buffer areas	1. The D'MOSS areas as well as irreplaceable CBA areas, is Critically Endangered, and thus will be maintained as private open space.	Project Developer / Body Corporate	Ongoing
	2. The rules and regulations of the management of the estate must incorporate control measures regarding access to the sensitive areas as well as prohibition of natural forest destruction.	Project Developer / Body Corporate	Ongoing

### 7.4.7. Maintenance / Retrofitting, Refurbishment & Management of the Infrastructure

Facilities and Infrastructure	1. MET Developments must ensure adequate budget, labour and the maintenance and management of the facilities to ensure appropriate aesthetics, community health and the prevention of environmental pollution and degradation. Requirements must include, but not limited to, regular collection of litter and removal of domestic waste.	Project Developer / Body Corporate	Ongoing
	2. MET Developments must ensure that services infrastructures for water, electricity, sewage, waste and storm water are adequately implemented and maintained to serve the new housing development requirements.	Project Developer / Body Corporate	Ongoing
	3. All maintenance, retrofits, refurbishment or related activities during operation must comply with the construction measures detailed in the construction phase of the EMP i.e. water and electricity saving devices must be replaced with same.	Project Developer / Body Corporate	Monthly



## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

	4. All buildings must be inspected monthly and any structural failures must immediately be reported, and the necessary steps must be taken to ensure continued safety.	Project Developer / Body Corporate	Monthly
	5. Where areas are disturbed as a result of repair to services, these must be rehabilitated according to the EMPr.	Project Developer / Body Corporate	Ongoing
Access Routes	1. All access ways must be maintained.	Project Developer / Body Corporate	Monthly
	2. Access for vehicles will be limited to residents and approved visitors.	Project Developer / Body Corporate	Ongoing
	3. All residents and approved visitors must be aware of the layout, directions and speed limits through road signage.	Project Developer / Body Corporate	Ongoing
<b>7.4.8. Landscaping</b>			
Open Spaces / Gardens	1. Both private gardens and communal areas are to be planted with locally indigenous, suitable plant species.	Project Developer / Body Corporate	Ongoing
	2. Fertilizers and herbicides are to be used in manner that will have a minimal impact on the surrounding natural open areas. For example, losses into open areas due to runoff from irrigation must be prevented.	Project Developer / Body Corporate	Ongoing
	3. No alien invasive vegetation (as listed in the Conservation of Agricultural Resources Act) must be used for rehabilitation or landscaping purposes.	Project Developer / Body Corporate	Ongoing
	4. Lawns must not be cut short during growing season. It is recommended that automatic sprinklers are to irrigate lawns in the early morning in summer, and late afternoon in winter.	Project Developer / Body Corporate	Ongoing

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

	5. Open space areas should be maintained as corridors with no barriers (such as fences, and roads) superfluous fences should be removed.	Contractor	Ongoing
	6. Gardens should be monitored for pests and diseases and environmentally friendly control measures employed.	Landscaper/ garden services	Monthly
	7. Plants should be monitored for survival and species that do not do well should not be replanted.	Landscaper/ garden services	Monthly
	8. Residents should not be allowed to plant non-indigenous species within the general area	Project Developer / Body Corporate	This should be expressed in the rules of the development
	9. The open space must be managed in accordance with the Open Space Management Plan.		
<b>7.4.9. Domestic Animals</b>			
Domestic Animal Care	1. Pets are a positive social component and supported from an EMPr perspective; however, residents / tenants are to comply with lease agreements.	Project Developer / Body Corporate	Ongoing
	2. No domestic dogs or cats must be allowed within the sensitive areas	Project Developer / Body Corporate	Ongoing
	3. Owners wishing to take their pets for walks (or any other reason) into the rest of the developed area or open space areas must do so only in areas where these pets are allowed. Within these areas the animal must be kept under control.	Project Developer / Body Corporate	Ongoing
	4. Possible prohibiting of domestic cats in the residential areas should be investigated. This would be ideal as it would reduce the numbers of indigenous fauna (mainly birds and small rodents) killed by cats.	Project Developer / Body Corporate	Ongoing

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

	5. Should you walk your pet, owners or caretakers of these animals, must collect all waste and dispose of this to a waste bin.	Project Developer / Body Corporate	Ongoing
<b>7.4.10. Waste Management</b>			
General Waste	1. A procedure and system for the separation, recycling and management of general waste must be developed and implemented. This must address the procedure for the re-use and recycling of waste in preference to treatment and disposal.	Project Developer / Body Corporate	Ongoing
	2. Waste that cannot reasonably be re-used or recycled must be disposed of via the eThekweni Municipality's waste disposal system or disposed to the registered waste disposal site.	Project Developer / Body Corporate	Ongoing
Hazardous Waste	1. Oil and grease traps must be installed at all kitchens.	Project Developer / Body Corporate	Ongoing
	2. Oil and grease collected from the traps at the kitchens must be disposed of at a reputable recycling company and maintenance records must be kept on file.	Project Developer / Body Corporate	Ongoing
	3. No vehicles must be in a serviced within the development and no hazardous substances disposed via the sewage or stormwater system or watercourses.	Project Developer / Body Corporate	Ongoing
	4. A hazardous waste collection point must be established to collect all fluorescent lamps and tubes.	Project Developer / Body Corporate	Ongoing
	5. All fluorescent lamps and tubes must be recycled or taken to a household hazardous waste disposal facility and records must be kept on file.	Project Developer / Body Corporate	Ongoing

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

	6. Hazardous substances spills from vehicles, e.g. oils, grease etc., will have to be monitored and cleaned up on discovery.	Project Developer / Body Corporate	Ongoing
Domestic Waste Management	1. Landowners (or tenant/s) must be responsible for placing their rubbish bin at the edge of their property for easy collection on the designated day.	Project Developer / Body Corporate	Ongoing
Solid Waste Management	1. Waste storage containers must be covered, tip-proof, weather-proof and scavenger proof.	Project Developer / Body Corporate	Ongoing
	2. The waste storage area must be fenced off to prevent wind-blown litter.	Project Developer / Body Corporate	Ongoing
	3. No burning, on-site burying or dumping of waste shall occur.	Project Developer / Body Corporate	Ongoing
Litter Management	1. Each landowner must be responsible for any litter in the area surrounding their unit. Cleaning of litter and debris from all communal areas must be done on a regular basis.	Project Developer / Body Corporate	Ongoing
Sewage	1. Contingency measures must be in place to ensure quick detection and repair of leakage or breakage to the on-site package plant, etc.	Project Developer / Body Corporate	Ongoing
	2. Keep infrastructure plans available for management and maintenance purposes.	Project Developer / Body Corporate	Ongoing
	3. Leaking systems must be monitored for any pollution of the surrounding environment and repaired as soon as possible.	Project Developer / Body Corporate	Ongoing
<b>7.4.11. Water Management</b>			
Management	1. Keep water reticulation plans available for management and maintenance purposes.	Project Developer / Body Corporate	Ongoing

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

	2. Adhere to the stormwater management system design measures.	Project Developer / Body Corporate	Ongoing
	3. The application of dissipating structures should be included in the storm water system design to reduce erosion and sedimentation if discharges into the Aller River are to occur.	Project Developer / Body Corporate	Ongoing
	4. Rainwater harvesting and grey-water reuse must be ensured.	Project Developer / Body Corporate	Ongoing
	5. The operation of all bulk stormwater infrastructure must be monitored and maintained. Ensure that water reticulation is well maintained to offer a high level of service at all times.	Project Developer / Body Corporate	Ongoing
	6. All outdoor irrigation to make use of rainwater or grey-water and drip-irrigation for landscape areas.	Project Developer / Body Corporate	Ongoing
	7. All land owner(s) / managing company / body corporate must monitor and maintain the stand-level stormwater infrastructure in proper working order in perpetuity, which includes but is not limited to inlets, pipes, manholes, catch pits, attenuation facilities, rainwater harvesting. All water infrastructure must be maintained, and all leakages fixed.	Project Developer / Body Corporate	Ongoing
Post Management	1. Monitor run-off from roads and buildings and check that erosion is not taking place and that stormwater is not accumulating in pools.	Project Developer / Body Corporate	Ongoing
	2. The development must be managed in order to prevent pollution of drains, downstream watercourses or groundwater, due to suspended solids, silt or chemical pollutants.	Project Developer / Body Corporate	Ongoing
	3. There must be periodic checking of the site's drainage system to ensure that the water flow is unobstructed.	Project Developer / Body Corporate	Ongoing

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

### 7.4.12. Energy Management

Lighting	1. Lighting must adhere to eThekweni Municipality by-laws and guidelines.	Project Developer / Body Corporate	Ongoing
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### 7.4.13. Vegetation Management

Alien Invasive Species	1. Weed and alien invasive species must be controlled and eradicated as per the Alien Invasive Management Plan.	Project Developer / Body Corporate	Ongoing
	2. Surveys of the site for alien invasive species must be conducted throughout the life of the project. These include new invasions by recorded species and new species on site.	Contractor	Ongoing
	3. All alien invasive vegetation must be managed (as listed in the Conservation of Agricultural Resources Act, No. 43 of 1983) on an on-going basis in all public areas. Private landowners must be responsible for the removal of aliens on their own properties.	Project Developer / Body Corporate	Ongoing
	4. Annually an alien invasive assessment must be completed by an independent specialist / contractor and a report must be submitted to the authorities as per legislative requirements.	Project Developer / Body Corporate	Annually
	5. All alien clearing for conservation areas, open and public spaces must be done according to SANParks specifications or appropriate methodology as per Department of Agriculture, Forestry and Fisheries standard practice.	Project Developer / Body Corporate	Ongoing

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

	6. Areas where vegetation is required to be kept low (such as along power line servitudes), should be managed using weed eaters above the soil line to maintain the indigenous vegetation and reduce invasion potential.	Contractor	Ongoing
	7. To prevent increased invasion in areas cleared for construction but not needed for operation, rehabilitation of the natural vegetation should be done. This should follow the prescribed Conservation Plan.	Contractor	Ongoing
	8. Removal teams must be trained on the methods of removal for each species and must be educated and tested on alien plant identification. Each team should have a field guide (provided in the Alien vegetation management plan (pages 9 to 24)) to ensure proper identifications are made prior to removal.	Contractor	Once, prior to removal actions and subsequently when new workers are hired.
	9. Removal teams should do initial removals from June to October to allow for easier access into the forest (less lush vegetation) other areas can be done year-round.	Contractor	June to October
	10. Plants must be manually removed where possible or cut down using chainsaws or pangas where appropriate where these will not result in the mistaken removal of indigenous plants.	Contractor	Monthly
	11. Species-specific control measures should be used as provided in this report. If any new species are recorded, best practice means of control must be researched and used.	Contractor	Monthly

## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

	12. The open spaces must not be developed in future and their maintenance and conservation ought to be a continuous process	Project Developer / Body Corporate	Ongoing
<b>7.4.14. Legislative Requirements</b>			
Legislative Requirements	1. Should any scope changes or amendments to the development, facilities and / or operational activities be considered, an environmental opinion by a qualified EAP or environmental lawyer must be obtained, and environmental compliance ensured prior to commencement with the changes,	Project Developer / Body Corporate	Annually
	2. All environmental requirements must be reviewed annually to ensure legal compliance.	Project Developer / Body Corporate	Annually
	3. Bi- annually an environmental audit must be completed by an independent environmental practitioner and the EMPr to be updated if required.	Project Developer / Body Corporate	Annually
	4. Determine baseline water, carbon footprint and energy audit with annual re-evaluation and implementation to reduce footprint.	Project Developer / Body Corporate	Annually
	5. Occupational H&S must be compiled with and this includes internal noise, lighting and economics.	Project Developer / Body Corporate	Annually
<b>7.4.15. Monitoring, Reporting and Record Keeping</b>			



## POST CONSTRUCTION PHASE AND REHABILITATION ACTIVITIES

Environmental Management	1. Compliance must be ensured with all monitoring, auditing, reporting and record keeping requirements as per approved environmental authorisations e.g. (EA, WUL, permits, licenses and amendments there to), programmes and plans.	Project Developer / Body Corporate	Ongoing
	2. Environmental parameters for monitoring must be determined and monitored as per criteria. These could include waste generation and disposal, water management and energy management. Actions must be determined and implemented where a decline in performance is detected e.g. alien invaders spread may indicate rehabilitation failures.	Project Developer / Body Corporate	Ongoing

### 7.5. CLOSURE PHASE AND RELATED ACTIVITIES

It is not anticipated that the Regent Business Estate will be decommissioned in the foreseeable future.

Should decommissioning take place, the legislation applicable at that time should be complied with, and relevant environmental practices implemented. Generally, activities and their impacts during decommissioning phase are likely to be similar in nature to those identified for the construction phase.

It is recommended that a closure plan be developed prior to closure and be approved by the relevant Authorities approximately one year before the anticipated closure, following consultation with the relevant Authorities to determine the specific requirements to be addressed regarding closure.

## 8. CONCLUSION

This EMPr has been compiled using various inputs including the Environmental Assessment Practitioners (EAPs), specialists, relevant Authorities and IAPs. These inputs facilitated the identification of relevant and implementable mitigation measures, which may now be used by MET Developments project management, engineers and appointed construction teams to respond to the tender documentation respectively. Penalties to be imposed for the transgression of environmental specifications are also noted along with the roles and responsibilities of all stakeholders. In order to ensure compliance, all parties undertaking the planning, design and construction of the Regent Estate Development must be fully acquainted with the contents of the EMPr. This will ensure that potential negative impacts are identified, avoided or mitigated.

## APPENDIX A

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### ENVIRONMENTAL CODE OF CONDUCT

One of the objectives of the EMP is to ensure that all the workforce, contractors, sub-contractors and construction staff understand 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 Environmental Site Officer and ECO to ensure that each contractor, sub-contractor and workforce understand and adhere to the Code of Conduct.

#### ALL PERSONS ARE OBLIGED TO KEEP TO THE RULES OF THIS CODE OF CONDUCT

- Do not waste electricity, water or consumables;
- Only use authorised accesses;
- Do not litter;
- Dispose of solid waste to the correct waste containers provided;
- Prevent pollution;
- Use the toilet facilities provided;
- Do not dispose contaminated wastewater to the storm water or the environment;
- Immediately report any spillage from containers, plant or vehicles;
- Do not burn or bury any waste;
- Do not trespass onto private properties;
- Strictly leave all animals alone. Never tease, catch or set devices to trap or kill any animal;
- Never damage or remove any trees, shrubs or branches unless it forms part of working instructions;
- Do not deface, draw or cut lettering or any other markings on trees, rocks or buildings in the area;
- Know the firefighting procedure and locations of firefighting equipment; and
- Know the environmental incident procedures.

## APPENDIX B

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### PROJECT START UP INSPECTION SHEET

**PROJECT START UP INSPECTION SHEET**

PROJECT: \_\_\_\_\_  
CONTRACT NO.: \_\_\_\_\_  
CONTRACTOR: \_\_\_\_\_

DATE: \_\_\_\_\_  
COMPLETED BY: \_\_\_\_\_

ES	ENVIRONMENTAL ASPECT	YES NO N/A	COMMENTS	ACTION
PLANNING				
ESTABLISHMENT				
CLEARANCE				

## APPENDIX C

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### ROUTINE SITE INSPECTION SHEET

**ROUTINE SITE INSPECTION SHEET**

PROJECT: \_\_\_\_\_  
CONTRACT NO.: \_\_\_\_\_  
CONTRACTOR: \_\_\_\_\_

DATE: \_\_\_\_\_  
COMPLETED BY: \_\_\_\_\_

ES	ENVIRONMENTAL ASPECT	YES NO N/A	COMMENTS	ACTION
HOUSEKEEPING				
CONSTRUCTION ACTIVITIES				
REINSTATEMENT AND REHABILITATION				

## APPENDIX D

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### **SITE DECOMMISSIONING INSPECTION SHEET**



**SITE DECOMMISSIONING INSPECTION SHEET**

PROJECT: \_\_\_\_\_  
CONTRACT NO.: \_\_\_\_\_  
CONTRACTOR: \_\_\_\_\_

DATE: \_\_\_\_\_  
COMPLETED BY: \_\_\_\_\_

ES	ENVIRONMENTAL ASPECT	YES NO N/A	COMMENTS	ACTION
DECOMMISSIONING OF THE SITE				

## APPENDIX E

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### **SITE INSPECTION REPORT STRUCTURE**

# APPENDIX E

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## **Purpose of the Site Inspection Report**

The purpose of the Site Inspection Report is to describe the results of the site inspections undertaken by the Environmental Control Officer (ECO) or delegated responsible person so that the level of compliance with the Environmental Management Programme (EMPr) can be monitored throughout the contract.

It will be expected to summarise the following:

- The key results
- Trends observed
- Key issues observed
- Problems encountered
- Actions required and response taken or to be taken
- Recommendations.

The Site Inspection Report should conclude with a commentary on the overall performance of the Contractor in terms of meeting the requirements of individual/groups of Environmental Specifications and/or EMPr.

## **Preparation of the Site Inspection Reports**

Site Inspection Reports are expected to be prepared regularly throughout a given construction contract, including (but not limited to) the following:

- Prior to the handover of the site to the Contractor
- At regular stages throughout the construction works, and particularly with the commencement of particularly significant activities
- At the decommissioning of the site and prior to the handover of the site to the Employer/Operator.

## **Recommended Structure for the Site Inspection Reports**

The following report structure is suggested for the Site Inspection Report:

### **Introduction**

By way of setting the context for the Site Inspection Report, this section should outline the following:

- The need for the Site Inspections, and reporting.
- Purpose of the Site Inspection Report.
- The scope of coverage of the Site Inspection

### **Environmental Management Requirements**

This section should summarise the environmental requirements for the contract and for the construction works, and against which environmental performance is assessed.

### **Methodology**

This should describe the activities undertaken during the site inspection, such as:

- A site walkabout with the Principal Agent (PM).
- A review of documents and records, such as complaints records and/or incidents reports maintained by the Contractor and/or ECO.
- Consultations with pertinent parties on site.

### **Findings of the Site**

## APPENDIX E

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### **Inspection**

This should contain reference to the following:

- A commentary on the level of compliance with key aspects of the Environmental Specifications, as listed in the checklist(s).
- Details of issues, infringements, problems and non-compliances encountered.
- Recommendations on actions to be undertaken to address any issues, infringements and/or non-compliances.

### **Conclusions**

This should include an overall statement on the level of compliance observed during the site inspection.

### **Annexures**

Annexures should be used to store supporting information to the main document, such as:

- Photographs.
- A quick reference, summary table of issues of concern and the necessary corrective measures required to address these issues.

## APPENDIX F

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### ENVIRONMENTAL INCIDENTS REGISTER

INCIDENTS INCURRING PENALTIES	VALUE
Failure to secure construction site from public access.	R5,000.00
Failure to stockpile topsoil correctly.	R1000.00
Failure to stockpile materials in designated areas.	R500.00
Pollution of water bodies – including increased suspended solid loads.	R2,000.00
Discharging effluent and/or storm water onto the ground or into surface water	R1,000.00
Failure to provide adequate sanitation, waste disposal facilities or services.	R1,000.00
Failure to demarcate construction area boundaries before commencing construction clearance and other activities	R1,000.00
Insufficient education of employees regarding environmental matters and site housekeeping practices	R500.00
Use of soil in an unspecified manner	R500.00
Inappropriate mixing of cement/concrete and poor management of slurry	R1,000.00
Unauthorised removal of indigenous trees, medicinal or other plants.	R1,000.00
Damaging/killing animals/birds.	R1,500.00
Failure to reinstate disturbed areas within the specified timeframe.	R1,000.00
Fire – costs of runaway fires will be borne by the Contractor, should he/she be proven responsible for such fires.	R5,000.00
Failure to provide equipment for emergency situations	R1,000.00
Defacing, painting or damaging natural or heritage features and private property	R1,000.00
Damaging cultural, historical and/or archaeological sites of importance	R5,000.00
Failure to maintain basic safety measures on site	R1,000.00
Failure to obey site protection measures specified by the Project Manager	R1,000.00
Failure to carry out required community liaison, damage to property etc., without prior negotiation and/or compensation and other social infringements	R500.00
Persistent and un-repaired oil leaks from machinery. The use of inappropriate methods of refuelling.	R500.00
Failure to provide drip trays and/or empty them frequently.	R500.00
Inappropriate use of bins and poor waste management on site.	R200.00
Inappropriate off-site disposal of waste from site.	R1,000.00
Deliberate lighting of illegal fires on site.	R500.00
Eating of meals on site outside the defined eating area. Individual not making use of the site ablution facilities.	R100.00
Dust or excess noise on or emanating from the site.	R500.00
Inappropriate use of watercourses and water bodies – such as for unapproved water abstraction, washing of vehicles, wastewater disposal and use by employees for washing.	R2,000.00
Failure to comply with specifications for working within a wetland and stream.	R 10,000.00
Any person, vehicle, item of plant, or anything related to the Contractor's operations causing a public nuisance.	R1,000.00
Improper use of plant or equipment.	R500.00
Construction vehicles not adhering to speed limits.	R250.00
Failure to maintain a register of incidents on site.	R1,000.00
Failure to remove all temporary features and leftovers from the construction site and works areas upon completion of the works.	R20,000.00
Repeated contravention of the specifications or failure to comply with instructions	R5,000.00

**STORMWATER MANAGEMENT PLAN**

## APPENDIX H

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### OPEN-SPACE MANAGEMENT PLAN



## APPENDIX I

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### **ALIEN INVASIVE MANAGEMENT PLAN**

## APPENDIX J

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### **SPILL CONTINGENCY PLAN**