STEPHANIE CLIFF
SEEDCRACKER ENVIRONMENTAL CONSULTING
Reg EAP. (EAPASA) 2019/487
BSc (Hons) Animal Science, BSc (Hons) Wildlife Management
Cell: 082 626 4117
WWW.SEEDCRACKERS.CO.ZA

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAM FOR THE ESTABLISHMENT OF A LIGHT INDUSTRIAL 3 TOWNSHIP ON ERVEN 5 & 6 SUNRELLA AGRICULTURAL HOLDINGS, LANSERIA X79, GAUTENG

APPLICANT:
GROWTHPOINT PROPERTIES PTY LTD

APRIL 2025

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1. INTRODUCTION

Growthpoint Properties PTY LTD (the applicant) proposes the establishment of an **Industrial 3 township**, to develop warehouses / cargo holding areas, that will be utilized to support the Lanseria International Airport. The project is located on **Holdings 5 and 6, Sunrella Agricultural Holdings, City of Johannesburg, (to be known as Lanseria X 79).** Growthpoint Properties PTY LTD proposes the development of the "Lanseria Cargo Park", consisting of logistics and cargo facilities, with related office components, aviation related hangers, workshops, offices, and non-aviation related warehouses, that will be utilized to support the Lanseria International Airport.

In terms of the amended EIA Regulations 2014, certain listed activities have been identified that will be affected by the proposed project, and which will subsequently require environmental authorisation from GDE. These activities are:

GNR 983: Listing Notice 1:

- **Activity 27:** The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.

GNR 985: Listing Notice 3:

- **Activity 4 c (iv);** The development of a road wider than 4 metres with a reserve less than 13,5 metres, **in Gauteng,** where Sites are identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;

- **Activity 12 c (ii):** The clearance of an area of 300 square metres or more of indigenous vegetation in Gauteng Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans;

- **Activity 14 c (ii) (iv):** The development in metres; or (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs (a) within a watercourse; Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans.

Figure 1: Locality Map

These activities may not commence until Environmental Authorisation has been received from the approving authority; the Gauteng Department of Environment [GDE]. The application will follow a Basic Assessment approach in terms of Section 19 of Government Notice R982 (as amended in March 2017) of NEMA: BAR.

The applicant has appointed Seedcracker Environmental Consulting CC (SEC), an independent and registered Environmental Assessment Practitioner, to conduct the Basic Assessment Application, including this EMPr.

2. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Growthpoint Properties PTY LTD has appointed Messrs Stephanie Cliff of Seedcracker Environmental Consulting, a registered Environmental Assessment Practitioner (EAP), to conduct the Basic Assessment application, which includes the compilation of this EMPr. Messrs Cliff has no business, financial or personal interest in the development, and is therefore able to provide an independent, objective assessment.

Environmental Assessment Practitioner (EAP):	SEEDCRACKER ENVIRONMENTAL CONSULTING CC	
Contact person:	STEPHANIE CLIFF	
Postal address:	N/A	
Telephone:	082 626 4117	
E-mail:	Stephweb@mweb.co.za	
EAP Qualifications	BSc Hons Animal Science BSc Hons wildlife Mgmt IAIA Member Registered EAP	

Messrs Cliff is a qualified Animal Scientist and Wildlife Manager, and practicing Environmental Assessment Practitioner, with over 20 years experience in leading and conducting environmental impact assessments in the development sector. Messrs Cliff is a founding member of the EAPASA accreditation board and a long-standing member of IAIA SA. Messrs Cliff is a registered Environmental Assessment Practitioner, Number 2019/487. Stephanie has considerable experience in the management and co-ordination of all aspects of the Environmental Impact Assessment (EIA) processes. Her experience includes the integration of various specialist assessments in the compilation of environmental impact reports and environmental management plans. Her profile is given in Appendix 1. The declaration of independence is also given in Appendix 1.

3. DETAILS OF THE APPLICANT

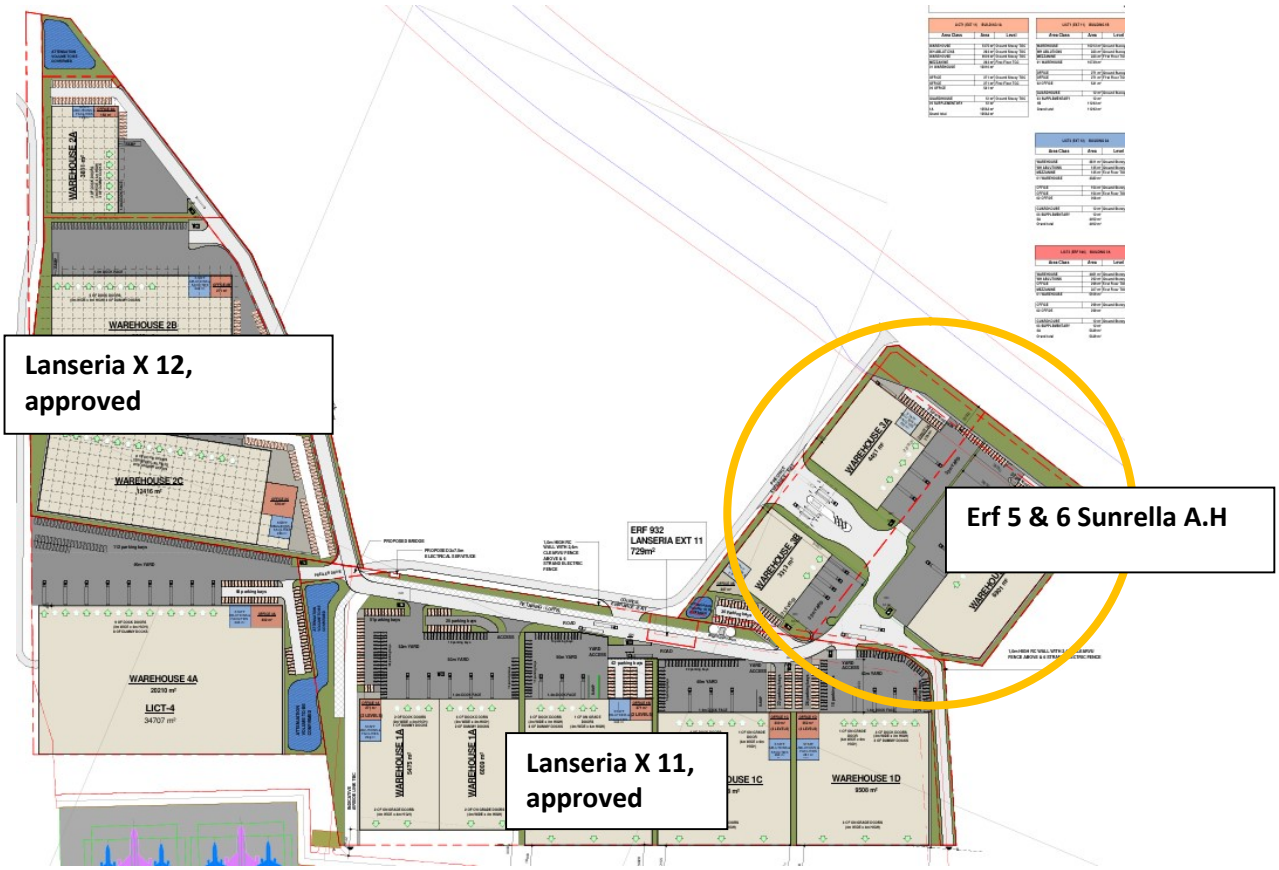
Applicant details:	Growthpoint Properties Limited	
Contact person:	Polla Scholtz	
Postal address:	P.O. Box 78949, Gauteng	
Postal code:	2146	072 111 8975
Telephone:	011 944 6050	
E-mail:	AScholtz@growthpoint.co.za	

4. LOCATION AND PROPERTY DESCRIPTION

The properties are situated at **51 and 49 Main Avenue, Sunrella AH**, east of the Lanseria International Airport. Erf 5 and 6 measure 2.1ha each. Holdings 5 and 6, Sunrella Agricultural Holdings have **historically been used for agricultural purposes** (piggery). The holdings were developed in the past; however, these buildings have been demolished, with only rubble and litter remaining on site. The study area is presently used for grazing by cattle.

The application sites and the immediate surrounding area, forms part of the **Smart City Initiative/Precinct vision of the President** and is led by the Investment and Infrastructure Office. The study area is located within the primary development zone of the Greater Lanseria Smart City Development Proposal.

The **Lanseria X 79 township will serve as the Secure access entry point into the approved Lanseria X 11 and Lanseria X 12 townships:**



Preller Drive will be used to obtain **access** to the proposed.

5. ACTIVITY DESCRIPTION

Growthpoint Properties PTY LTD (the applicant) proposes the establishment of an **Industrial 3 township**, to develop warehouses / cargo holding areas, that will be utilized to support the Lanseria International Airport. The project is located on **Holdings 5 and 6, Sunrella Agricultural Holdings, City**

of Johannesburg, (to be known as Lanseria X 79). The land use rights being applied for are as follows:

Proposed uses	Erf/Erven no*	Size		Height	Only for
		Coverage	FSR		
INDUSTRIAL 3	Erven 932 & 933	60%	0.6 Offices restricted to 2500m²	25m (3 Storeys)	As per Scheme, Industrial purposes, commercial purposes, business purposes (excluding restaurants, motor showrooms, showrooms, medical consulting rooms, domestic service industries), builders yard, building material storage.
As per City of Johannesburg Land Use Scheme, 2018					

The application site is situated within an area that has been classified as an **Industrial node, and Peri Urban** in terms of the Nodal Review 2019/20 Policy document.

The application sites and the immediate surrounding area, forms part of the **Smart City Initiative/Precinct vision of the President** and is led by the Investment and Infrastructure Office. The study area is located within the primary development zone of the Greater Lanseria Smart City Development Proposal.

Growthpoint Properties PTY LTD proposes the development of the “Lanseria Cargo Park”, consisting of logistics and cargo facilities, with related office components, aviation related hangers, workshops, offices, and non-aviation related warehouses, that will be utilized to support the Lanseria International Airport. The development proposal is poised to catalyse / unlock the construction commencement of the Lanseria Smart City Initiative/Precinct.

The study area was investigated by Enviroguard Ecological Services cc. Holdings 5 & 6 have been completely transformed by historical activities on site, to such a degree, that no natural species remain. The natural vegetation that used to occur on site has been destroyed due to development, agriculture and the demolition of the area. As a result, the sites have a low species richness and are dominated by pioneer weedy and alien invasive species. The vegetation unit on Erf 5 & 6 Sunrella A.H, has a **Low (none) ecological sensitivity.**

Although the development will result in the loss of floral and faunal species, development within already degraded and urbanised areas is considered preferable to development in more natural areas beyond the urban footprint. This, combined with the already impacted state of the study area, makes development herein more favourable.

A **Wetland Assessment and Hydropedological study** has been conducted by Dr Andries Gouws, Index PTY LTD, for the site. A broad valley floor was identified that occurs at the headlands of the

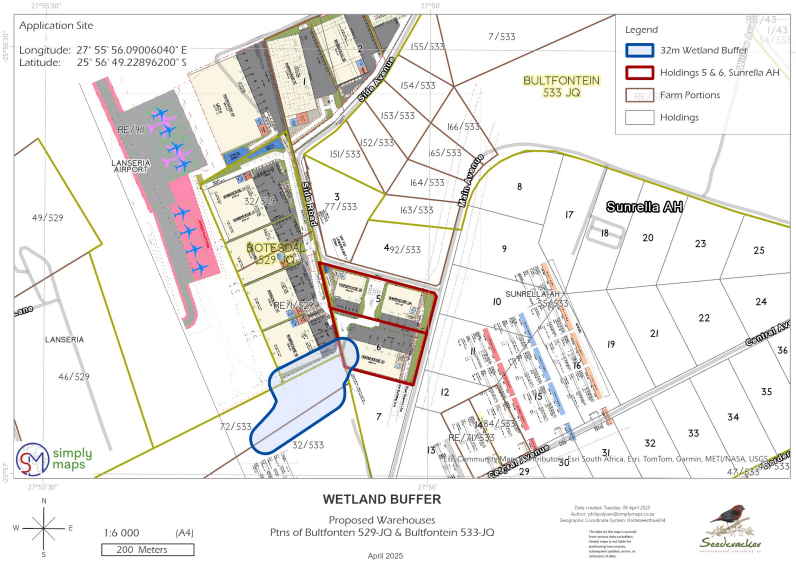
drainage system. There are no clear channels that drain the site, all rainwater drains as surface or deep lateral flow. There are no soils that are gleyed or organic soils that would indicate permanently saturated zones. The soil forms identified on the valley floor were Oakleaf, Dresden and Longlands. No heavily mottled soils or soils that have a grey matrix in the subsoil were found that would indicate seasonally and temporary waterlogged conditions; No facultative hydrophilic sedges, grasses or woody plants are present that would indicate seasonally waterlogged soils; The site is however located topographically on the lowest point of the landscape where wetlands are likely. Before the diversion structures were constructed, surface flow during high intensity rainstorms would likely have taken place. The surface drains are now effectively managing runoff, but has created a totally unnatural situation.

Prior to the development of the site, the drainage of the site was towards the north. Due to the shallow slope, drainage was in the form of sheet flow with no pronounced drainage line. The soil conditions did not allow for the development of wetlands on the property. Therefore, Dr Gouws's conclusion is that **no wetlands occur on the property. T**here is a depression on the western boundary of the site, that will have surface flow during high intensity rainfall events and then dry out rapidly. Lateral downslope water movement of subsurface water will continue to take place. This will feed downstream wetlands.

Managing lateral soil water that occurs in the soil horizons above the saprolite (or ferricrete) is important from an ecology perspective and presents specific engineering challenges. Geotechnical engineering recommendations need to be respected and incorporated in any planning methodology for the development. The wetlands downstream must be sustained by maintaining the inflow of water into the soil (recharge) and by limiting or mitigating sealing of the soil surface. Water flow down slope (interflow) must be maintained by preserving the flow paths, and discharge into the wetland must be preserved. These measures will help ensure that development structures will not be affected by excess water in the rainy season.

The Lanseria X 79 township will impact / encroach into the 32m zone of regulation of the seep wetland located on the adjacent Portion 72 of the Farm Bultfontein 533 JQ. The WUL will include this activity.

a)



Geoid Geotechnical Engineers (GGE) have conducted a detailed **geotechnical investigation** for the proposed Southern Precinct of the Lanseria International Airport expansion project, of which Holdings 5 & 6 Sunrella A.H, form a part of. Based on the Geotechnical field profiling, Geoid has characterised Holdings 5 & 6 Sunrella A.H by two geotechnical zones, Zone 1 and Zone 3.

Geoid Geotechnical Engineers (GGE) have conducted a detailed **geotechnical investigation** for the proposed Southern Precinct of the Lanseria International Airport expansion project, of which Holdings 5 & 6 Sunrella A.H, form a part of. See Appendix G for this report. Based on the Geotechnical field profiling, Geoid has characterised Holdings 5 & 6 Sunrella A.H by two geotechnical zones, Zone 1 and Zone 3.

Zone 1 is uncontrolled fill. The soil profile on this zone is characterised by highly compressible / potentially highly collapsible hillwash soils and localised loose fill deposits of variable thickness, blanketing compressible residual granite, which tend towards being slightly expansive near the diabase. Given the historic agricultural nature of much of the site, localised deposits of uncontrolled fill will be present which would negatively influence founding of structures and support of pavements if not appropriately mitigated.

Zone 3 exhibits shallow groundwater. This zone is typically characterized by bands of gully wash which range from loose, compressible, cohesionless sands to moderately expansive clays. This zone largely appears to be underlain by residual diabase, which is similarly potentially moderately active in the reworked zone, although this is frequently capped by competent hardpan ferricrete which masks the nature of the residual soils. Appropriate geotechnical recommendations have been provided in the report.

EDS Engineers propose that **bulk water** will be obtained from the water tower south-west of the proposed development. A link pipeline will be required to service the proposed development. No connection to the municipal sewer is available and therefore a package plant is proposed.

Preller Drive will be used to obtain **access** to the proposed. The Traffic Impact Assessment requires the following upgrades to the surrounding road network:

1. Pelindaba Road (R512) / 6th Road (R552) intersection: The intersection will be converted to a traffic signal that can accommodate the 2024 background traffic demand. If the intersection is converted to a traffic signal-controlled intersection, the intersection will be able to accommodate the development traffic. No additional road upgrades are required as a result of the development traffic
2. 6th Road (R552) / Middel Road intersection: With the addition of the latent development traffic, road upgrades are required at this intersection to accommodate the latent development traffic demand. By making changes to the intersection layout, signal settings as well as signal layout, the development traffic can be accommodated.
3. The applicant must provide lay-by's (drop-off facilities) along 6th Road (R552) where required, and walkways along the boundary of the proposed development on Preller Drive (up to the development access).

For **stormwater**, the site will have attenuation infrastructure as per the JRA guidelines, and will be discharged to an external stormwater system running along Preller Drive, where the water will ultimately be discharged into the natural downstream watercourse through outlet controlled structures. The attenuation pond outlet will include an erosion and energy dissipation structure as approved by the JRA.

The existing **Eskom** MV network in the selected area does not have sufficient spare capacity to cater for the new development. A new Eskom MV feeder must be constructed from the existing 88/11KV Lanseria substation to the development site. Lanseria Ext 11 and Ext 79 are adjacent to each other and will be notarially tied. Eskom proposed that a formal application to be submitted to Eskom for Lanseria Ext 11, Erven 932-933 and to be based on Eskom Self-Built contract. An application for a Self-Built project was submitted to Eskom by Claassen Auret Electrical Engineers and is currently in the concept phase. The total electrical demand for the development site (Ext 11 and Ext79) will be 2'500KVA/11KV and a new MV feeder must be erected from the existing Eskom Lanseria substation to the development site. Eskom is also presently planning to upgrade the capacity of the Lanseria substation networks which will assist in providing the required capacity to the development. The first phase of the development will require an electrical connection of 2'500KVA/11KV.

6. APPLICABLE LEGISLATION AND GUIDELINES

The following list of environmental legislation applies to the environmental activities identified in Section 1.

Table 1: Governing Legal Framework for activities on the site;

Title of legislation, policy or guideline:	**Administering authority:**
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996): Chapter 2 Section 24	Department of Environment, Forestry and Fisheries (DFFE)
National Environmental Management Act No. 107 of 1998 as amended	Department of Environment, Forestry and Fisheries (DFFE)
NEMA Environmental Impact Assessment Regulations as amended, GNR 326	Department of Environment, Forestry and Fisheries (DFFE) Gauteng Department of Environment (GDE)
Assessment for Reporting on Identified Environmental Themes	Department of Forestry, Fisheries and the Environment (DFFE)
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) GN number 1002: National List of Ecosystems that are Threatened and Need Protection dated 9 December 2011, as it relates to the NEMBA; GN number R.1020: Alien and Invasive Species Regulations, 2020, in Government Gazette 43735	Department of Environment, Forestry and Fisheries (DFFE) Gauteng Department of Environment (GDE)

dated September 2020 as it relates to the NEMBA; GN number 1003: Alien and Invasive Species Lists, 2020, in Government Gazette 43726 dated 18 September 2020, as it relates to the NEMBA; and GN number 30568: Threatened or Protected Species (TOPS) list dated 14 December 2007, as it relates to the NEMBA.	
Government Gazette 45421 dated 10 May 2019 as it relates to the Department of Forestry, Fisheries, and the Environment (DFFE's) national environmental screening report required with an application for EA as identified in regulation 16(1)(v) of EIA Regulations: o For the Terrestrial Biodiversity Theme: GN 320 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity as published in Government Gazette 43110 dated 20 March 2020; and For Animal and Plant Species Themes: GN 1150 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant and Animal Species as published in Government Gazette 43855 dated 30 October 2020	Department of Environment, Forestry and Fisheries (DFFE) and Gauteng Department of Environment (GDE)
Government Notice 598 Alien and Invasive Species Regulations (2014), including the Government Notice 864 Alien Invasive Species List as published in the Government Gazette 40166 of 2016, as it relates to the National Environmental Management Biodiversity Act, 2004 (Act No 10 of 2004)	Department of Environment, Forestry and Fisheries (DFFE)
National Environmental Management Waste Act GNR 921	Department of Environment, Forestry and Fisheries (DFFE) and Gauteng Department of Agriculture and Rural Development (GDARD)
National Water Act, 1998, Act 36 of 1998	National Department of Water and Sanitation (DWS)
Water Services Act, 1997, Act 108 of 1997	
Government Notice 509 as published in the	

Government Gazette 40229 of 2016 as it relates to the National Water Act, 1998 (Act No. 36 of 1998)	
National Environmental Management: Air Quality Act, Act 39 of 2004 and the Atmospheric Pollution Prevention Act, Act 45 of 1965	Department of Environment, Forestry and Fisheries (DFFE)
National Heritage Resources, Act, 1999, Act 25 of 1999	South Africa Heritage Resources Agency (SAHRA)
Gauteng Conservation-Plan 3.3 (2011)	Provincial, Gauteng Department of Environment (GDE)
Conservation of Agricultural Resources (Act 43 of 1983) National Department of Agriculture 21 April 1983	National Department of Agriculture
The Gauteng Agriculture Potential Atlas Version 4.4 Gauteng Department of Agriculture and Rural Development (GDE)	The Gauteng Agriculture Potential Atlas Version 4.4 Gauteng Department of Environment
Sustainable Development Criteria for Built Environment Projects requiring Environmental Impact Assessments in Gauteng, 2009	Gauteng Province
Gauteng Environmental Management Framework Gauteng Province 2015	Gauteng Province
Gauteng Spatial Development Framework, 2030	Gauteng Province
Gauteng Urban Edge 2008 / 2009	Gauteng Province
Joburg 2040 – Growth and Development Strategy	Johannesburg Metropolitan Municipality
Johannesburg Spatial Development Framework, 2040	
Nodal Review, 2020	
The Draft Greater Lanseria Master Plan (GLMP)	
Lanseria Regional Spatial Development Policy (LRSDF)	
Lanseria Integrated Open Space Plan (LIOSP) 2018	

7. PURPOSE OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

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 and monitored to achieve a desired operational and/or end state. The EMPr addresses the identified environmental impacts during the design, construction,

operation 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 and sustainable way.

The EMPr is a dynamic document that will be continually updated, as per authority instruction prior to authorization, and on site during monitoring activities as and when required. This EMPr prepared by Seedcracker Environmental Consulting, pertains to the implementation of an Environmental Management Programme and mitigation measures related to the construction of the high-volume national warehouse and distribution facility for automotive service parts, for the FORD Motor Company. This EMPr sets out conditions for managing the identified environmental impacts during the planning, construction, and operational phases of the development.

Thorough consideration has been given to the development in terms of the planning, construction, operational phases whilst considering the environment. Environmental management must be addressed during the entire lifecycle stage of a project.

7.1 Scope of the EMPr

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

This EMPr will be used as a binding document between the applicant and the appointed contractors, as well as all other persons involved in the execution of activities related to the construction of the Lanseria X 79 Development. These conditions must be adhered to for the duration of the construction, post-construction and operation phases of the development.

This EMPr addresses the following phases of the development:

(a) The Planning and Design Phase

The planning phase is the ideal opportunity to incorporate pro-active measures to ensure that environmental impacts arising from the proposed Lanseria X 79 township, are avoided, and mitigated from the outset. Proper planning during this phase can ensure that the likelihood of specific impacts taking place is minimized, and that the required corrective action is undertaken to further limit potential impacts.

(b) The Construction Phase

Most of the impacts during the construction phase will have an immediate effect (e.g., loss of flora and faunal habitat, traffic inconvenience, noise, dust and pollution / waste generation). If the site is monitored continually during the construction phase, it is possible to identify and appropriately mitigate these impacts as they occur. These impacts will then be mitigated through the implementation of the measures described in this EMPr.

(c) Post construction and Rehabilitation Phase

Following the completion of the construction phase, rehabilitation measures must be followed to minimise the impacts going forward. This includes ensuring removal of all material and structures that are no longer required used in construction and rehabilitation of disturbed areas.

7.2 Objectives of the EMPr

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 to minimise the extent of environmental impacts, and to manage environmental impacts associated with the proposed project.
- Creates awareness and specifies measures to prevent or mitigate long-term or permanent environmental damage or degradation.
- Establishes monitoring methods for environmental management practices for the 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 / rehabiliated 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.

7.3 EMPr Methodology

The methodology used for this Environmental Management Programme (EMPr) hasbeen 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.

This EMPr includes:

- 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.

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

This EMPr is binding on the applicant and appointed contractor, during the life of the project. It is essential that the EMPr requirements be carefully studied, understood, implemented, and always adhered to. Each aspect related to the EMPr has been addressed as described in the below table. Each action within the EMPr is supported by the priority of when the specific action will need to be implemented.

ENVIRONMENTAL ASPECT	The various aspects/activities associated with the project, that will impact the environment, and that will require mitigation.
ENVIRONMENTAL MEASURES AND ACTION PLANS	Activities likely to cause significant impacts. The actions required to either prevent and/or minimise the potential impacts on the environment that are associated with the project.
TIMING	When the actions for that specific aspect must be implemented and/or monitor.

TARGET	The (quantitative) level of performance, sometimes determined by legislation, which must be met, and monitored by the ECO
RESPONSIBILITY	The party/ies responsible for implementing the environmental measures and action plans laid out in the EMPr.

8. ACCOUNTABILITY AND ENVIRONMENTAL CONTROL

8.1 Administration

Copies of this EMPr must be kept at the site office and will be distributed to all senior contract personnel. All senior personnel shall be required to familiarize themselves with the contents of this document.

8.2 Roles and Responsibilities

The implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different but vital role involved in the implementation of the EMPr and mitigation measures presented in the Basic Assessment Report, relevant to the various phases of the development of the Lanseria X 79 township, and the establishment thereof.

8.3 The Applicant

The applicant remains ultimately responsible for ensuring that implementation of this EMPr complies with the relevant legislation, and that the authorised activities are implemented according to the requirements of the EMPr.

Although the applicant will appoint an external Contractor to undertake the contract on a design and construct basis, the responsibility still remains with the applicant. The applicant must ensure that sufficient resources (time, financial, labour, equipment, etc.) are available to the other role players e.g. the Environmental Control Officer (ECO), and contractor, to efficiently perform their tasks in terms of the EMPr. The applicant will be held responsible for restoring the environment in the event of negligence leading to damage to the environment.

- The applicant must ensure that the EMPr is included in tender documentation so that the contractor who is appointed is bound to the conditions of the EMPr.
- The applicant must be familiar with all the recommendations and mitigation measures of this EMPr.
- The applicant must monitor site activities on a frequent basis for compliance.
- The applicant must conduct internal audits of the construction site against the EMPr.
- The applicant must confine the activities to the areas already occupied, and ensure that no encroachment into open areas which are sensitive in nature occurs.
- The applicant must rectify transgressions through the implementation of corrective action.

8.4 Authorities

The authorities (GDE, DWS) are responsible for processing and issuing necessary permits and authorisations within the NEMA regulated time frames. The authorities ensure that the applicant complies with the terms that are stipulated within the Environmental Authorisation. Where necessary, the authorities must assist the applicant in understanding and meeting the specified requirements. The authorities will perform random site visits and audits, to ensure compliance with the authorisation conditions. In case of long-term non-compliance, the applicant must provide an action plan with corrective measures for approval by the authorities.

8.5 Contractors and Project Engineers

The Project Engineer (PE), appointed by the applicant, reports directly to the applicant project manager, and oversees all technical aspects of the various projects. The PE 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.

The contractor acts as the applicant's agent on site and is bound to the EMPr conditions through his/her contract with the applicant. The contractor is responsible for ensuring that he/she adheres to all the conditions of the EMPr. The contractor must thoroughly familiarise him/herself with the EMPr requirements before coming onto site and must request clarification on any aspect of these documents, should they be unclear. The contractor must ensure that he/she has provided sufficient budget for complying with all EMPr conditions at the tender stage.

The contractor must comply with all orders (whether verbal or written) given by the ECO, project manager or site engineer in terms of the EMP. It is the Contractor's role to always implement and comply with recommendations and conditions of the EMPr.

The PE works in close cooperation with the ECO and must ensure that the EMPr is implemented correctly. The Contractor or Project Engineer must appoint a dedicated Environmental Site Officer (ESO) for the duration of the construction period. The ESO must be a senior member of the construction company or on-site team, and have overall environmental management responsibilities for the site. The ESO must monitor the activities of the Contractor and all subcontractors, and must ensure that mitigation measures contained in this document are implemented and adhered to on a daily basis. The ESO must 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.

The ESO is the direct link between the ECO and the Contractors and subcontractors. The ESO must ensure that the EMPr forms part of the tender documentation to the Contractor and becomes legally binding on the Contractor and anyone acting on behalf of the Contractor during construction. It is the responsibility of the project engineers, contractors and sub -contractors to prepare and implement Method Statements which detail the means they will employ in order to meet the objectives set in the EMPr. The contractors and sub-contractors will be required, where specified, to provide Method Statements to the Resident Engineer setting out in detail how the management

actions will be implemented in order to ensure that the environmental management objectives will be achieved. Regular consultation with the ECO is required in this regard.

The PE is responsible for the implementation of the general and specific environmental awareness training programme (to be presented by the ESO). Further responsibilities include keeping records of waste disposal, audits, inspections, monitoring and corrective actions. The PE must assist the ECO with the identification of any new significant environmental impacts, and the necessary environmental management requirements to manage them.

8.6 The Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) must be an independent environmental consultant appointed by the applicant or contractor to act as the applicant or contractors representative, to monitor and review the on-site environmental management and implementation of this EMPr by the Contractor.

The ECO must form part of the project team and be involved in all aspects of project planning that can influence environmental conditions on the site. The ECO must attend relevant project meetings, conduct inspections to assess compliance with the EMPr and be responsible for providing feedback on potential environmental problems associated with the development.

The ECO's duties will include the following:

- Assisting the developer in ensuring that any necessary environmental authorisations and permits have been obtained.
- Maintaining open and direct lines of communication between the applicant, project engineers, Contractor and Environmental Control Officer (ECO), with regard to environmental matters.
- Appointing specialists (botanists, ecological ecologists, etc.) as required to advise the ECO.
- Reporting on environmental issues at construction site meetings.
- Reviewing and approving the Contractor's construction method statements.
- Regular site inspections of all construction areas with regard to compliance with the EMPr.
- Monitoring and verifying adherence to the EMPr, the Environmental Authorisation (EA), and approved method statements at all times, monitoring and verifying that environmental impacts are kept to a minimum.
- Taking appropriate action if the specifications are not followed.
- Assisting the Contractor in finding environmentally responsible solutions to problems.
- Monitoring the undertaking by the Contractor of environmental awareness training for all new personnel coming onto site.
- Advising on the removal of person(s) and/or equipment not complying with the specifications.

- Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMPr.
- Auditing the implementation of the EMPr and compliance with the EA on a monthly basis.
- Undertaking a continual review of the EMPr and recommending additions and/or changes to the document to the developer and contractor for discussion.
- Keeping a photographic record of progress on site from an environmental perspective. This can be conducted in conjunction with the ESO as the ESO will be the person that will be onsite at all times and can therefore take photographic records weekly. The ECO would need to check and ensure that the ESO understands the task at hand.
- Recommending additional environmental protection measures, should this be necessary.
- Providing report back on any environmental issues at site meetings.

The ECO has the right to enter the site and carry out monitoring and auditing based on prior arrangement with the landowner/ applicant, and subject to compliance with health and safety requirements applicable to the site (e.g. wearing of safety boots and protective head gear.

8.7 Environmental Awareness Training

The ESO and ECO will be responsible for putting an Environmental Awareness Training Programme in place, for all staff members. Before commencing with any work, all staff members must be briefed about the Environmental Code of Conduct. After being briefed about the contents of the Environmental Code of Conduct, staff members must sign an Environmental Training register as proof of their training.

The presentation shall be conducted, as far as is possible, in the employees' language of choice. As a minimum, training should include:

* Explanation of the importance of complying with the EMPr.
* Discussion of the potential environmental impacts of construction activities.
* Explanation of the mitigation measures that must be implemented when carrying out their activities.
* The significant environmental impacts, actual or potential, because of their work activities.
* The importance of not littering.
* The need to use water sparingly.
* Details of, and encouragement to, minimise the production of waste and re-use, recover and recycle waste where possible.
* Details regarding archaeological and/or historical sites which may be unearthed during construction and the procedures to be followed should these be encountered.
* Details regarding fauna, and the procedures to be followed should these be encountered during the construction phase.

Training should be conducted by a suitably qualified person and if necessary, in more than one language to ensure it is understood by all workers. Copies of the environmental training must be available on site in languages appropriate to the work force. Records of the training sessions including attendance registers, nature of training and date of training should be kept to ensure all parties have received the necessary training and for auditing purposes. 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. Environmental awareness and training is an important aspect of the implementation of the EMPr.

Once the awareness plan and training material are available, the entire workforce and project management team should undergo an environmental awareness training course. Environmental awareness training is critical for the workforce to understand how they can play a role in achieving the objectives specified in the EMPr. All visitors to the site (including project team members which are not based onsite), must undergo Environmental Induction before being permitted to the construction and associated area. The Environmental Induction should be structured to provide a condensed version of the comprehensive Environmental Awareness Training that will be provided to the workforce / onsite staff.

Environmental awareness could be fostered in the following manner:

- Induction for all workers on site, before commencing work;
- Refresher courses as and when required;
- Daily toolbox talks at the start of each day with all workers coming on site, where workers might be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working; and
- Courses must be given by suitably qualified personnel and in a language and medium understood by workers/employees. The Environmental Awareness Plan should be drawn up by the PM, in consultation with the ECO and EO and should be kept for implementation and audit purposes. The Environmental Awareness Plan should be a dynamic document (or set of documents) which should be updated as changes to the project, environment, staff and etc. occur.

The applicable training will be as follows:

- The ESO must be appropriately trained in environmental management and shall possess the skills necessary to impart environmental management skills to all personnel involved in the construction of the proposed mixed land use and residential development;
- The PE and ESO must ensure, on behalf of the applicant, that the employees (including construction workers, engineers, and long-term employees) are adequately trained and understand the management measures provided in the EMPr; and
- All employees shall have an induction presentation on environmental awareness.

The induction and training must, as a minimum, include the following:

- The importance of conformance with all the specifications of the EMPr and other environmental policies and procedures;

- The significant environmental impacts, actual or potential, of their work activities;
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the EMPr and other environmental policies and procedures;
- The potential consequences of departure from specified operating procedures; and
- The mitigation measures required to be implemented when carrying out their work activities.

9. ENVIRONMENTAL MANAGEMENT COMPLIANCE, MONITORING AND REPORTING

9.1 Environmental Officers (ESO and ECO)

The Environmental Control Officer is responsible for the implementation of environmental management measures with monitoring and reporting. The applicant and the Project Engineer must appoint an Environmental Site Officer (ESO) for the duration of the construction period. 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 ECO must 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 applicant and approving authority on a monthly basis.

It must be noted that the ECO is responsible for providing an independent evaluation of compliance with the EMPr, and not for enforcement of the conditions of the EMPr. The responsibility of enforcement of the conditions of the EMPr lies with the Applicant and PE, while the GDE Environmental Management Compliance Inspectors will also enforce existing and potentially new conditions through compliance notices.

The Contractor ESO must be a senior member of the construction on-site team and have overall environmental management responsibilities for the site daily. The ESO must monitor the activities of the Contractor and all subcontractors daily and must 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 must be developed and implemented by the ESO. The ESO must 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.

Non-compliance with the conditions of the EMPr must be viewed as a breach of appointment contract for which the construction contractors will be held liable. The appointed contractor is in non-compliance with the EMPr if:

- There is evidence of contravention of the EMPr, or the Method Statements developed by the contractor within the boundaries of the construction site or areas of contractor responsibility;
- Construction related activities take place outside the defined boundaries of the site;

- Environmental damage occurs due to negligence/laziness/blatant disregard to the environment;
- The contractor fails to comply with corrective or other instructions issued by the ECO within an agreed time frame; or
- The contractor fails to respond adequately to complaints from the public or authorities.

The applicant and the construction contractors are liable for any construction rehabilitation costs associated with their non-compliance with the EMPr. This rehabilitation will be undertaken to the satisfaction of the ECO and the GDARD.

9.2 Reporting and Review

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 changes 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 Environmental Authorisation, 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 are specified as per the relevant conditions of the various phases i.e., planning and design, construction, and operational (with rehabilitation). The specific conditions related to the monitoring requirements per timeframe have been specified as per relevant condition and must be ensured.

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 must 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 ESO must report any problems in terms of adherence with the EMPr directly to the PE and ECO.

The ECO must 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 applicant monthly.

The EMPr reporting and documentation requirements must be based on best environmental practice principles. ECO reports must be regularly reviewed by all accountable parties. The contents of this EMPr must be discussed at monthly or weekly project meetings with all contractors project managers. No parties may use the excuse, “I didn’t know”. The construction contractors will be contractually obliged to fulfill any reasonable recommendations, and implementation of these actions will be assessed in the ECO audits.

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

- There is evidence of contravention of clauses within the boundaries of the site;
- Environmental damage ensues due to negligence;

- The Contractor ignores or fails to comply with corrective or other instructions issued by the applicant or Project Engineer within a specified time; and
- The Contractor fails to respond adequately to complaints from the public.

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.

9.3 Complaints and Incidents register

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.

Site Documentation

The following is a list of documentation that must be kept within the contractors offices on site, and must be made available to the ECO and/or any regulating body on request.

- A copy of this Environmental Management Programme (EMPr);
- Declarations of understanding by the Applicant; Project Engineer; Contractors and sub-contractors; designated Environmental Site Officer;
- Environmental Method statements;
- ECO approval of method statements.
- Incident reports and registers;
- Complaints register;
- Site Establishment Plan;
- Copies of ECO reports;
- Copies of internal monitoring reports (internal management and monitoring – daily/weekly checklists);
- Awareness training material (toolbox talks, inductions, etc.);
- Non-conformance Reports
- Written Corrective Action Instructions
- Notification of Emergencies and Incidents
- Service receipts for chemical toilets and waste removal; and
- Records of all remediation / rehabilitation activities.

Complaint records

The Contractor must record any complaints received. The lodged complaint must be brought to the attention of the ECO, ESO and PE. 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 Applicant 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 must be recorded by the Contractor,PE, ESO, ECO and submitted to the applicant. The following information will be documented:

- Time, date, location and nature of the incident
- Actions taken and by whom
- Response to complainant
- Measures to be implemented to address the complaint

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

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 applicant or authorities.

Outlined below are levels relating to the severity of environmental problems, which will be implemented. The principle is to keep as many issues at the lowest levels of severity as possible.

Level 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.

Level 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.

Level 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.

Level 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 the applicant may choose to institute against the contractor.

10. NON-COMPLIANCE, PENALTIES AND STOP WORK ORDERS

The EMPr will be binding on all contractors operating on the site and must be included within the Contractual Clauses. The Contractor shall comply with the environmental specifications and requirements on an ongoing basis and any failure on his part to do so will entitle the ECO and applicant to impose a penalty.

10.1 Remedial and Preventative Action / Management of Environmental Incidents as they arise

The ECO must devise a Remedial Action Procedure for implementing corrective and preventive action. The Corrective Action Procedure is to be implemented by all contractors and subcontractors on site.

This system should:

a) Report non-compliance with procedures or targets identified during monitoring and inspections (on a formal Incident Form).
b) Report other failures creating environmental problems.
c) Report imminent non-compliance and potential environmental problems.
d) Through the Resident Engineer, delegate responsibility for corrective and preventive action.
e) Document the resolution of the reported non-compliance or environmental problem.
f) Impose disciplinary action where persistent non-compliance occurs.

10.2 Individual transgressions

It is recommended that the engineers/contractors institute fines for the following less serious violations and any others determined during work as detailed below:

- Littering on site.
- Lighting of illegal fires on site.
- Persistent or un-repaired fuel and oil leaks.
- Any persons, vehicles or equipment related to the Contractor's operations found within the designated "no-go" areas.
- Excess dust or excess noise emanating from site.
- Possession or use of intoxicating substances on site.
- Any vehicles being driven in excess of designated speed limits.
- Removal and/or damage to heritage objects on site.
- Urination and defecation anywhere except at designated facilities.
- Unauthorised camp establishment (including stockpiling, storage, etc.);
- Hydrocarbons / hazardous material: negligent spills / leaks and insufficient storage;
- Ablution facilities: non-use, insufficient facilities, insufficient maintenance;

- Late method statements or failure to submit method statements;
- Insufficient solid waste management (including clean-up of litter, unauthorised dumping etc.);
- Erosion due to negligence / non-performance;
- Excessive cement / concrete spillage / contamination
- Insufficient fire control and unauthorised fires;
- Non-induction of staff.

The Project Engineer should use these as a guide and use his/her own judgement in determining the issues of non-compliance and the severity of the contravention and thus the value of the spot fine:

An individual entering the defined No Go boundaries of the site;	R500 – 150
An individual driving a vehicle into the defined No Go boundaries of the site;	R300 – 1500
An individual driving any earthmoving plant into the defined No Go boundaries of the site;	R500 – 3000
A plant operator ignoring a verbal warning to have an oil leak from machinery repaired;	R100 – 300
An individual littering on site;	R50 – 300
An individual not making use of the ablution facilities;	R50 – 200
An individual spilling fuels (non use of funnels/pumps etc);	R100 – 500
An individual eating outside of the defined eating area;	R50 – 200
Smoking on site other than in the designated site camp;	R50 – 200

These fines should be revised when the construction phase commences to ensure relevance.

For each subsequent similar offence committed by the same individual, the fine should be doubled in value to a maximum value of R5 000. The Project Engineer will not collect the fines from individuals, but will rather inform the Contractor of the contravention, the individual's identity and the amount of the fine. The fine will be deducted from the Contractors' monthly certificate, or the Project Engineer will issue a variation order, to the value of the fine, for the Contractor to undertake activities that would in some way enhance the state of the environment or the site. It will be the Contractor's responsibility to reclaim such fines from the guilty individuals. These fines do not preclude any prosecution under any other law.

10.3 Contractors Transgressions

Offences and Penalties

The Project Engineer, in consultation with the ECO, may also issue penalties directly to the Contractor for general non-compliance with the EMPr. The following serves as a guide for such penalties in certain situations. Any avoidable non-compliance with the conditions of the EMP shall be considered sufficient ground for the imposition of a penalty. Possible offences, which should result in the issuing of a contractual penalty, include, but are not limited to:

- Entrance into no-go areas / adjacent properties;
- Unauthorised damage to natural vegetation;

- Stockpiling, hazardous chemical storage in no go areas;
- Hydrocarbons / hazardous material: negligent spills / leaks and insufficient storage;
- Ablution facilities: non-use, insufficient facilities, insufficient maintenance;
- Insufficient solid waste management (including clean-up of litter, unauthorised dumping etc.);
- Erosion due to negligence / non-performance;
- Excessive cement / concrete spillage / contamination'
- Insufficient fire control and unauthorised fires;
- Preventable damage to adjacent water courses or pollution of waterbodies; and
- Non-induction of staff.

	RANDS
Excessive litter on the site or in the site camp;	500 – 2000
Water wastage or water contamination;	500 – 4000
Spillage of fuels on site;	500 – 4000
Inadequate provision of waste bins and toilets;	500 – 2000
The non provision of eating areas;	500 – 1000
Unnecessary dust generation and inadequate control;	500 – 3000
Unnecessary noise generation;	500 – 3000
Non provision of hydrocarbon fuel absorbents;	1000 – 3000
Inadequate erosion controls and prevention;	500 – 4000

The issuing of a penalty will usually be preceded by a verbal warning by the ECO, during which a time frame for rectifying the situation, as well as the penalty to be implemented should this not be done within the time frame, will be agreed on. The value of the penalty will depend on the seriousness of the contravention, and thus the Project Manager/Engineer must use his/her judgement in determining the value of the penalty. In addition to penalties, the Project Manager/Engineer has the power to remove from Site any person who is in contravention of the EMPr, and if necessary, the Project Manager/Engineer can suspend the relevant part or all of the works, as required. Note that penalties can be issued over and above costs that are incurred for the repair or rehabilitation of any environmental damage caused by the Contractor and all the parties over which they have responsibility. In this regard costs incurred by the Contractor in repairing or rehabilitating any environmental damage caused by non-compliance with the EMPr cannot be claimed in the Contract Bill, nor can any extension of time be claimed for such works.

Penalty amounts should be deducted from Certificate payments made to the Contractor. As an example, these funds can be kept separately and donated to a non-profit organisation that works in the environmental or conservation field, or used as a reward system/incentive for employees doing a good job.

The applicant or project Engineer at their 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.

10.4 Emergency Preparedness

The contractor must develop environmental emergency response procedures to ensure that there will be an appropriate response to unexpected or accidental actions or unforeseeable incidents that will cause environmental impacts during the construction period. Such activities may include, *inter alia*:

- Accidental fires.
- Accidental spillage of hazardous substances.
- Accidental injury to staff.

The contractor and sub-contractors shall comply with the emergency preparedness incident reporting requirements that must be developed prior to construction.

11. METHOD STATEMENTS

A method statement must be completed *by the Contractor*, for each activity requiring a method statement, as specified in this EMPr or as requested by the ECO. A method statement is a document that details the way a work task or process is to be completed. The method statement should outline the hazards involved in the task, and include a step by step guide on how to implement the action in a safe manner, that reduces the overall risk to people and the environment. The method statement must also detail the control measures and remediation activities to ensure the safety of persons who are affected by the task or process, as well as the environment.

The method statement must identify the risks associated with the various work stage at hand. Steps to reduce the potential risk associated with these stages must then be determined and included in the method statement. The sequential steps and actions to be followed by the persons carrying out the works must be written down and signed by the responsible party. The Resident Engineer or his representative (and the ECO) must approve any deviations from the approved Method Statements. All amendments must be in writing and must be submitted to the Resident Engineer or his representative.

The method statement must cover applicable details with regard to:

- construction procedures,
- materials and equipment to be used,
- getting the equipment to and from site,
- how the equipment/ material will be *moved* and where it will be *stored* while on site,
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur,
- timing and location of activities,
- any other information deemed necessary by the RE and ECO.

The method statement should be written by a person that is competent in the tasks to be undertaken and how these can be effectively communicated. *The contractor shall not commence an*

activity until all required method statements have been approved the ECO. Such approval should not unreasonably be withheld.

All control measures detailed in the method statement must be the subject of "environmental awareness" talks prior to the initiation of works. By explaining these important measures during the environmental awareness discussion, everyone involved will have a clear understanding of how to carry out the work, as well as the safe work method sequences and equipment required. See Appendix B for the recommended Method Statement Template.

Approved method statements must be readily available on site, preferably in the contractors camp. The location of the approved method statements must be communicated to all relevant personnel. The contractor shall carry out the works in accordance with the approved method statements as they apply to the work in progress.

The contractor should produce the following method statements as a minimum, prior to construction activities:

- Site Office establishment
- Stockpiling of materials
- Stormwater management plan
- Site Dust Management
- Crew Camps and construction lay down areas
- Solid Waste Management
- Sourcing, excavating, transporting and dumping of fill and spoil material
- Hazardous Material Management
- Hydrocarbon Management
- Surface Water Management
- Noise and Vibration Management
- Cement and Concrete Batching
- Pollution Control
- Site Access and Traffic Management
- Incident and Emergency Response Management

Additional method statements must be developed (or revised) if the need therefore is identified during the construction phase of the project.

The Contractor must abide by these approved method statements, and any activity covered by a method statement shall not commence until the ECO has approved the method statement. The method statement must be submitted to the ECO 2 weeks prior to the intended date of commencement of the activity. See Appendix 2 for the proposed Method Statement Template.

12.. **LIMITATIONS AND ASSUMPTIONS REGARDING ASSESSMENT AND MITIGATING OF IMPACTS**

The assumption for the development of this EMPr is that all significant issues have been identified. Environmental issues, concerns and development constraints were identified using professional judgement, project information (all technical and biophysical specialist reports), experience of similar projects, a review of available literature, site visits and consultation with the authorities.

The significance of the environmental issues has been evaluated, and mitigation and management measures have been identified as part of the EMPr development. The effectiveness of the EMPr is limited by the level of adherence to the conditions detailed in this report by the applicant, 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. This EMPr is a dynamic document that must be continually updated, as and when required.

13. SUMMARY OF ACTIVITIES AND ASPECTS CAUSING IMPACTS

The construction of the Lanseria X 79 township, will result in negative impacts on the receiving environment. These negative impacts have been identified and summarised by Seedcracker Environmental Consulting as follows:

- Geotechnical suitability
- Impact on the adjacent seep wetland *buffer zone*
- Soil erosion
- Loss of vegetation and habitat
- Soil pollution
- Surface water quality
- Ground water quality
- Waste Management
- Noise and disturbance
- Visual impact
- Impact on Archaeological and/or Paleontological Resources
- Air quality
- Traffic Impact
- Infrastructure and services
- Employment, safety and security

The above-mentioned aspects can potentially cause negative impacts that may occur during the planning, construction, and operational phases of the proposed project. To prevent and/or minimise these impacts, care must be taken where practical and feasible, for the disposal of waste, spillage, storage, noise, dust control, sediment management, the rehabilitation of disturbed 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 majority of the proposed project can be minimised and/or entirely negated. These are dealt with in this EMPr.

14. THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The Environmental Management Requirements are designed to address the issues and impacts raised through the environmental assessment process. Each of the Environmental Management Requirements is presented in table format.

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
Planning and Design: management actions that must be completed prior to the commencement of construction activities: Administrative and Legal Requirements				
Planning and Design requirements	• Environmental Authorisation Conditions must be incorporated into the final EMPr to ensure that all conditions and requirements of the Environmental Authorisation and the EMPr stipulated as pre-requisites for construction are met. • Sustainable designs must be considered and implemented to reduce resource consumption (electricity, water). • No wetlands were identified on site. Subsurface water flow does take place on the site that feeds wetlands downstream. • The Seep wetland, located on the adjacent property to the site, depends on shallow groundwater discharge. Excavation, grading, or compaction can alter subsurface flows which feeds this wetland. Foundations, paved surfaces, and stormwater infrastructure can block or divert natural hydrological pathways, potentially drying the wetland. • Appropriately Engineering design foundations is required to avoid intercepting or redirecting groundwater away from the seep wetland. • Permeable paving must be used on site to ensure groundwater recharge to feed the downstream wetland. • Placing roads on the property should be done with care as the property is subject to laminar water flow and	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity. During design and prior to, construction	Ensure that all requirements of the Environmental Authorisation are in place and that any approval is obtained in writing prior to commencing any construction activities. Prevent potential pollution and /or environmental degradation during the operational phase of the project	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	subsurface movement of water. Culverts and rockfill must be used to allow stormwater flow and subsurface water flow. • Develop an installation sequence and layout drawings to work methodically.			
Site Planning for Construction	• Prior to construction commencing on site, the Project Engineer in consultation with the ECO and other project staff must compile a detailed Environmental Management site plan indicating where the various infrastructures will be located, and which areas of the site will be utilised for construction and associated operations. The plan should include items such as the location of stockpile sites. Plans for the location of construction roads / tracks, turning circles, working areas and facilities should seek to minimise the total area that is to be disturbed at any given point. Plans for the removal and disposal of wastes and any hazardous or contaminated materials (such as; fuel drums, soil which has been contaminated with leaked fuel or oil, and alien weed infested soil) should be described, as appropriate for the scale of the operation. The construction camp site should also be located on this plan. The issues listed in Appendix 3 must be shown on the Site Plan. • Method statements for the above activities is required from the contractor. • Indicate details of the access and internal roads and		Approved site plan before commencing with construction	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	track. • Indicate all “no go” areas. • Fence off the site to prevent edge effects into the adjacent vacant land portions.			
Construction Camp establishment	• The site selected for a construction camp must ensure potential negative impacts on the biophysical environment are kept to a minimum. All ancillary infrastructure including site offices, ablutions, storage facilities, vehicle parking facilities and any other infrastructure must be placed within transformed areas, avoiding areas of indigenous vegetation. • The construction site must be defined, fenced off and limited to authorised contractors only. • The construction site camp must comprise of: - Site office; - Ablution facilities; - Designated first aid area; - Eating areas; - Storage areas; • Development must be kept within the footprint and may not extend into any areas outside of the footprint design/project area. • The footprint of the construction camp must be kept to a minimum. • Enough parking must be provided for site staff and visitors at the construction camp. • Drainage from the site must be planned to prevent standing water and erosion occurring from run-off.	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity. During design and prior to, construction	Approved site plan before commencing with construction	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	• No abstraction from downstream river sources is permitted without the required authorisations from DWS. • Chemical toilets must be used as ablution facilities during the construction period by all contractors. • 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. • Bins and / or skips must be provided at frequent intervals for disposal of waste at the construction area and construction camp • 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. • Fuel must be stored in closed drums within a secondary containment facility or bowsers with pollution prevention measures in the event of spillage. • Fuel tanks must meet relevant specifications and be elevated to provide for the early detection of leaks. • Staff dealing with these materials / substances must be aware of their potential impacts and follow the proper safety measures. • Appropriate 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).			

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
Roles and Responsibilities	• The overall responsibility for ensuring the implementation of this environmental management plan rests with the applicant Project Engineer, Contractor, ESO and ECO. • 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. • Appointed contractors must ensure that all permanent and temporary staff, sub-contractors and suppliers adhere to this EMPr. • The Project Engineer and main contractor must appoint a senior staff member directly involved in the site construction activities as the Environmental Site Officer (ESO). This person must ensure the implementation of and adherence to the EMPr in the contractor's execution of the day-to-day construction activities. • The environmental responsibility of the ESO must be specified in this person's duties, which must also include: - Liaison with the appointed ECO; - Ensuring environmental awareness among members of the workforce; - Ensuring that the Contractor/s and members of the construction workforce are aware of the requirements of the EMPr; - The on-site implementation of the EMPr; - Monitoring inappropriate behaviour, environmental impacts, including pollution and environmental	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity. During design and prior to, construction	All team members are aware of their daily roles and responsibilities	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	incidents; and - The implementation of corrective action. • The independent ECO must be the responsible person for monitoring and reporting on compliance in respect of the implementation of the EMPr. • The contractor and Environmental Site Officer must inform the ECO prior to the commencement of any significant construction activity.			
Compliance	• All persons appointed / employed by the PE and their contractors on this project must abide by the requirements of the EMPr. • The applicant, PE or contractors may not direct a person to undertake any activity which would place them in contravention of the specifications contained within the EMPr. • Any member of the construction, operation or maintenance workforce found to be in blatant disregard of any of the specifications contained within the EMPr may be ordered to leave the site. • If a contractor is in breach of any of the specifications contained in the EMPr, the applicant, PE / ECO / ESO 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 must be suspended in the event non-compliance continues. Contractors must be responsible and will bear the cost of any delays, corrective or remedial actions required because of non-compliance with the specifications and	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity. During design and prior to, construction	All team members are aware of their daily roles and responsibilities	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	clauses of the EMPr. • A fine will be issued by the GDE for willful negligence or non-compliance resulting in environmental degradation or pollution. The fine will be determined by the GDE based on the severity of the incident. These costs will not be recoverable from the project & will be utilised to rectify the environmental degradation caused • Monthly monitoring, auditing must be conducted by the independent ECO. • The appointed ECO must submit audit reports to the contractor and applicant on a monthly basis. • The ECO, ESO and Engineer must consult and review compliance and performance against the EMPr and resolve the identified environmental concerns, non-compliance (including environmental incidents) and any complaints.			
Environmental Awareness	• Prior to the commencement of construction, proper signage must be erected along the roads warning both pedestrians and motorists of earthworks being undertaken on site. • All members of the construction workforce working on the site must be provided with proper high visibility clothing to ensure that they can be distinguished from the general public. • An after-hours must be provided for complaints, such as excessive dust from roads, noise after working hours, etc.	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity. The actions must be implemented daily by the entire construction team	Approved Training and Environmental Awareness programme before commencing with construction	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
Environmental Training and Induction	• The contractor has the responsibility to ensure all 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. • To ensure compliance to the EMPr by contractors, sub-contractors and employees, the applicant, PE and 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: - The subsurface later water movement must be maintained on site; - Why the environment needs to be protected; - Their roles and responsibilities in achieving compliance with the EMPr, including emergency preparedness and response requirements; and - The potential consequences of departure from specified operating procedures.	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity. During design and prior to, construction	Approved Training and Environmental Awareness programme before commencing with construction	Applicant, Project Engineer, ESO, ECO
Restriction of Working Areas	• Access to the site must be restricted at any one time, to reduce the potential for accidents, dust generation, soil and water pollution, fires, noise, and unnecessary environmental damage. • Prior to any construction beginning, the actual site to be worked must be clearly defined and demarcated by means of highly visible durable materials, e.g. orange netting, no danger tape is to be used.	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity.	Controlled access to the site for the contractors, work crews, sub-contractors.	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	• All construction material and machinery required for construction to be located within the demarcated activity zone. Vegetation within the demarcated zone may be cleared while vegetation outside of the zone must be left intact until construction reaches that area. • Once the demarcated area has been approved, a written motivation to alter the boundary must be submitted to the Resident Engineer for consideration and (possible) approval. • The markings of the site must be maintained throughout the construction period, as and where determined by the Resident Engineer and ECO. • No activities or dumping may take place outside of the demarcated activity zone. This is to ensure that unnecessary damage is not done to the surrounding areas. It will also ensure the safety of people working on site and people moving in the vicinity of the site. • Construction workers may not be allowed to stay on-site overnight.	During design and prior to, construction		
Water management	• Stormwater control measures must be designed and implemented in such a manner that ponding, soil saturation, and erosion are prevented. • 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 • A spill contingency plan must be compiled and implemented. The following must be considered in the event of a spill:	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity. During design and prior to, construction	Approved Water management programme before commencing with construction	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	- Stop the source of the spill; - Contain the spill; - All significant spills must be reported to the relevant authorities; - Remove the spilled product for treatment of authorised disposal; - Determine if there are soil, water, environmental or any other impact; - The incident must be documented; • Direct discharges of runoff from developed/ disturbed areas to receiving waters must be avoided wherever possible • Water discharged into the environment must be done so in a manner that is not conducive to erosion and does not result in negative impacts to any watercourse.			
Site security and safety considerations	• 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. • Details identifying what safety precautions must be adhered to must be ensured for the safety of all staff, and the general public, on site during the construction period. This must include protective clothing requirements for all types of construction activities on site, e.g., protection against dust, noise, operation of heavy machinery. • No persons, other than a night-watchman / security guard, may stay overnight at the construction site camp.	During design and prior to, construction	No incidents on site	Applicant, Project Engineer, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
Fauna and Flora Management	• Vegetation clearing must be done at the development front/footprint. Large areas must not be cleared unless they are surfaced or used immediately • Vegetation must be cleared independently of the topsoil to allow for topsoil collection and stockpiling • Use of herbicides must not be allowed for vegetation clearing unless required for specific application to invasive species. • Exposed areas of soil must be stabilised as soon as possible such as through landscaping • No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site. • Alien invasive plants which establish on site, must be removed and eradicated throughout all stages of the project.	Actions and method statements are to be completed by the PE prior to the commencement of the relevant construction activity. During design and prior to, construction	No unnecessary or negligent impacts to fauna and flora on site	Applicant, Project Engineer, ESO, ECO
Construction: This section presents the environmental requirements for the construction activities for the Lanseria X 79 township. Details of the actions to be undertaken must be presented in the Method Statement for each aspect prior to the commencement of construction activities. Method statements must be compiled by the Contractors or their sub-contractors and approved by the Project Engineer, ESO and the ECO.				
Construction camp site	• Chemical toilets must be maintained in a clean state. Portable chemical toilets must be provided to the ratio of at least 1 toilet per 10 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. • No spillage must occur when the toilets are cleaned or	During construction	Full compliance with EMPr requirements	Contractor, ESO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	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. • Under no circumstances may open areas or the surrounding properties be used as a toilet facility • Temporary toilet facilities and sanitation facilities must be serviced weekly • Storage of material, chemicals, fuels etc. must not pose a risk to the surrounding environment and this includes surface and groundwater. Temporary bunds must also be constructed around chemical or fuel storage areas to contain possible spillages • No construction or storing of materials must be located outside of the defined layout area. These areas must be demarcated prior to any activities commencing and personnel instructed of the rules to stay out of these areas (unless clearing alien invasive plants). • Storage areas must be on level ground. • 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. • 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.			

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	• No smoking must be allowed in the vicinity of storage or dispensing areas. • Fuel decanting and refuelling must take place within the construction camp only. Oil spill kits must be placed at the construction camp for the handling of accidental spillage • All temporary offices, equipment laydown areas, storage areas, stockpile areas, etc., must be located at on flat surfaces, to minimise the probability of impacts related to increased stormwater run-off intensity and spills of hazardous substances during construction activities.			
Access to the construction site	• Dust outfall into the surrounding environment must be effectively controlled using water sprays, fabric containment or curtains, where required. • Pedestrian and vehicle access must be restricted during construction to control access to otherwise potentially dangerous excavations and materials	During construction	Full compliance with EMPr requirements	Contractor, ESO
Vegetation clearing	• All ancillary infrastructure including site offices, ablutions, storage facilities, vehicle parking facilities and any other infrastructure must be placed within transformed areas. • No burning on site is allowed under any circumstances • All manually cleared Alien invasive Plant species must be disposed of carefully and must not be dumped in any areas of indigenous vegetation, even temporarily • No mass clearing of vegetation must be done, but	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	rather vegetation should be cleared as work progresses. No large areas must be cleared unless surfacing occurs immediately after • Exposure of bare soil may lead to sediment runoff into the wetland. Install silt fences, sediment traps, and erosion control blankets. Stabilize disturbed areas promptly using mulch or reseed bare areas with indigenous vegetation.. • Limit earthworks to the dry season.			
Flora and Fauna	• Environmental impacts, such as erosion caused by storm water run-off and weed invasion, increase proportionally with the increasing area of disturbance. Weed invasion can be minimised by taking measures to ensure that construction operations do not introduce exotic species to an area, and also by adopting measures to manage weed infestations at the site until such time as native species have become established after rehabilitation. • Any existing and new alien species must be removed as soon as possible after emergence • Alien vegetation that proliferates onsite during construction activities should be immediately removed on discovery.	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO
Adjacent seep wetland on P/72 Bultfontein 533 JQ	• No abstraction of water from the downstream watercourse may be permitted unless expressly authorised by DWS. • Implement the recommendations of the specialist hydropedological assessment prior to development, to	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	maintain the groundwater pathways feeding the seep wetland on the adjacent property, P/72 Bultfontein 533 JQ. • Design foundations and services, to avoid intercepting or redirecting groundwater. • Use permeable pavement and avoid deep excavation near seep zones. • Design the stormwater management of the site, for infiltration and filtration before water reaches the wetland. • Install biofiltration swales or rain gardens in the buffer zone where possible, to feed the adjacent seep wetland. • Use oil-water separators in parking lot drains. • Ensure stormwater is attenuated away from buffer zone. • Stormwater discharge from the attenuation pond must mimic natural discharge rates. • To manage erosion and sediment control during construction, install silt fences, straw bales, sediment basins, and erosion control blankets in the buffer zone area. • Limit clearing and grading during wet seasons. • Stabilize exposed soils quickly with indigenous vegetation or mulch. • Use green roofing systems to reduce runoff. • Stormwater infrastructure must be regularly maintained and inspected to ensure the adjacent seep wetland is not being choked / dried out. • Design traffic flow away from the buffer edge.			

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	• Restrict 24-hour operations near wetland edges if possible.			
Erosion	• Soil stockpiles must be secured with sand bags / silt fences around the base of the stockpile should an erosion risk be observed • Temporary soil stockpiles must only be placed within the construction site boundaries. Soil not utilised during construction activities must be stored in a designated soil stockpile area within the construction site camp • Temporary erosion controls must be implemented at areas that are sensitive to erosive processes such as steep slopes; • Erosion and sediment controls must be regularly monitored and maintained to ensure functionality throughout the construction phase. Maintenance checks must be prioritised after high rainfall events and observed damage must be immediately repaired. • Stormwater run-off controls must be implemented across the site in order to reduce the risk of concentrated run-off entering the downstream watercourse habitat.	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
Cultural Historic, Archaeological and Palaeontological Features	• The Project Engineer must ensure that all staff are trained to recognise potential cultural historic, archaeological and palaeontological artefacts and sites. The Resident Engineer must also ensure that a system is in place to cease activities if such a site is identified. • Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the find brought to the immediate attention of the Resident Engineer who will report it to the Gauteng SAHRA. The area will be fenced off with a radius of 20m around the unearthed item, demarcated as a no-go area and access will be prohibited. • The Project Engineer must then arrange for the appointment of a qualified archaeologist to examine the site and recommend further action. • Following consultation with the archaeologist and SAHRA, the PE will be responsible for approving the Contractor‟s resumption of normal activities. • Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site. • Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51.(1). • A Cultural Historic, Archaeological and Palaeontological Method Statement incorporating the above procedures and the site clearance Programme, including timing,	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	physical boundaries, the maximum depth of excavations and programming of these excavations, must be submitted by the appropriate contractor(s) to the Resident Engineer for approval. • Human remains confirmed younger than 60 years (to be confirmed by the police forensic unit or archaeologist) are to be reported directly to the nearest police station.			
Air Quality Management	• Using environmentally acceptable suppression methods where appropriate. • Covering long-term stockpiles or temporarily re-vegetating them. • Halting dust generating activities when wind speed exceeds 35 km/h. • Imposing a 25 km/h speed limit on access roads. • Re-vegetating exposed areas during the operating phase. • Prompt rehabilitation and wetting down of recently cleared areas to minimize dust creation. • Stockpiles (e.g. soil) should be maintained for as short a time as possible and should be enclosed by wind breaking enclosures of similar height to the stockpile. Stockpiles should be situated away from the site boundary, access roads. • Until vegetation used in rehabilitation efforts has established, temporary stabilization methods must be used (e.g. protecting exposed soils with coarse granular materials, mulches, or straw). • Construction should be undertaken in a phased manner, to limit the size of the area to be exposed at any one	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	time. • The Contractor will be responsible for the continued control of dust arising from his operations. Should a dust control method prove to be ineffective by the Project Manager and ECO, alternative methods will need to be conducted by the Contractor. Any changes in the dust control methods shall be for the cost of the Contractor. • Any complaints about dust recorded in the complaints register must be immediately investigated by the Resident Engineer and addressed. Contact details (e.g. telephone number) should be located at the entrance of the site for reporting of excessive dust after hours. • No waste, vegetation or any other material may be burnt on site, in compliance with smoke control regulations issued in accordance with the Air Quality Act (Act 39 of 2004). • Trucks transporting any form of soil or waste should be covered with a tarpaulin. • The speed of the traffic on the access roads needs to be kept slow (25 km/h) to curb any unnecessary dust. • No waste may be buried on site. • Approved Air Quality Method Statements. • Excessive dust generation as determined visually by the ECO, Resident Engineer or his representative is not permitted.			

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
Noise Management	• Where possible the contractors must use equipment, which limits excessive noise generation. • Within reason, any complaints pertaining to excessive noise and vibrations as recorded in the complaint register must be investigated by the Resident Engineer and addressed. • Construction activities to be limited to weekdays between 08:00 and 17:00. No work is to be undertaken on Sundays or public holidays. • Vehicles and machinery to be kept in good working order with the prescribed mufflers and silencers. • A Noise and Vibration Method Statement must be submitted by the appropriate contractors to the Resident Engineer for approval. • No loud music will be allowed on • No construction staff to be housed on site.	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO
Water use	• Opportunities to reduce consumption of, or re-use water must be adopted wherever possible. • Methods must be employed to ensure that water is not wasted. Environmental awareness training must ensure that staff is aware of the need to conserve water and to minimise the pollution of water. • A Water Consumption Method Statement must be submitted by the appropriate contractor(s) to the Resident Engineer or his representative for approval. • Potable water tanks must be installed at the construction site for human consumption and sanitation purposes. The contractor will ensure safe drinkable water for the labourers during the construction phase.	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
Water Quality and Stormwater Management	• Minimise the potential contamination of ground and surface water, and to minimise soil erosion, the Project Engineer must ensure that all precautions are taken to ensure that no surface or ground water becomes polluted. • Ensure all construction machinery is in sound working order and free of leaks from oil, fuel or hydraulic and excessive exhaust fume emissions. • Establish a dedicated area for construction vehicles, machinery or equipment to refuel and where cement can be mixed. Vehicle re-fuelling and cement mixing must only take place on impervious surfaces. • No vehicle must be refuelled, serviced or repaired on the construction site, except in designated areas. Only emergency repairs to be conducted on site, all regular service maintenance to be conducted off site. • Temporary storm-water runoff basins and drainage ditches may have to be constructed on site, in order to capture storm-water. • Wherever possible, drainage works should seek to mimic natural drainage patterns and utilise natural drainage lines with retained vegetation. • Anti-erosion measures must disperse run-off to reduce the volume and velocity of surface water flow and vulnerable areas to be stabilised. • Sedimentation into downstream drainage lines must be minimised through the effective stabilisation (e.g. gabions and Reno mattresses) and the re-vegetation of cleared areas.	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	• Details of storage of all chemicals must be submitted to the Project Engineer, ESO and ECO for approval. • Emergency plans must be in place in case of spillages onto road surfaces and/or open areas. Spill kits for small spills to be kept on site. • Contaminated soil (e.g. in vehicle parking areas, under generators) must be removed to an appropriate permitted solid waste disposal facility. Waste manifests to be kept by contractors to prove legal disposal of contaminated soil. • Environmental awareness training must ensure that staff is aware of the need to prevent water pollution.			
Waste Management	• Good housekeeping to be always undertaken. No illegal dumping or burning of waste allowed. Waste may not be buried. • Environmental awareness training to be undertaken with the construction workers regarding health and environmental impacts from illegal dumping. • Toilet facilities must be made available to construction staff. If portable chemical toilets are used, these are to be secured to the ground and cleaned weekly. Water should be provided for washing and sanitary bins for women. Waste to be disposed of at a wastewater treatment works. • A system for identifying, classifying and disposing of solid waste must be devised. • Waste should be classified as domestic (including litter), hazardous, or recyclable. • Waste materials (e.g. paper and glass) must be sorted	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	and sent for recycling, where the quantity allows this and if the facilities are available. • No littering is permitted on site; litterbins with secured lids must be provided throughout the site. • Centralised eating facilities must be provided for workers to facilitate litter control. • All non-hazardous solid waste must be removed on a regular basis and disposed of off-site at suitably permitted waste facilities. This includes any building rubble left after construction. • The Contractor may utilise the municipal waste collection services for disposal of waste. • Hazardous materials must only be disposed of at an approved hazardous waste disposal facility. No hazardous waste material to be disposed of as general waste. • A register of waste disposal (including waste manifests) and sorting records must be retained by the contractors and submitted to the Resident Engineer for auditing purposes. • Appropriate temporary disposal areas must be covered and be on an impermeable floor. • Excess soil and stone removed during the excavations should be used in site levelling or contouring. • Excess material not being reused, should be removed from the site and disposed of at a registered waste site landfill site. • A Waste Management Method Statement must be submitted by the appropriate contractor to the Resident			

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	Engineer for approval. • The requirements of the Waste Act (Act 59 of 2008), Health Act (Act 50 of 1992) and the National Environment Management Act (Act 107 of 1998) are applicable to waste management.			
Hazardous Material Management	• Fuel, solvents and other hazardous or toxic substances must be securely stored in a restricted, locked facility approved by the Resident Engineer. • Fuel and hazardous materials containers must be properly labelled. • Chemicals must be stored safely on site, on an impermeable lined surface and surrounded by lined bunds. Chemical storage containers must be inspected daily so that any leaks are detected early. • Storage facilities must be maintained and fire-fighting equipment is to be available and kept in good operating order at all times. • An emergency response plan (ERP) for fire and to manage the capture and treatment of polluted water, must be prepared by the applicant. These ERP's must be made known to the Contractors, and RE, and all staff at the env awareness presentations. • Generators and fuel supply needed for equipment during the construction phase must be placed on trays, which rest on clean river sand. This is to prevent any oil or fuel spills. The river sand (clean or contaminated) must be removed from the site once construction has been completed. All contaminated material must be disposed of at a registered hazardous waste disposal	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	facility. Vehicles are also to be parked over drip trays. • No cement or concrete should be mixed on the soil surface or on plastic sheeting. • A Fuels and Hazardous Materials Storage Method Statement must be submitted by the appropriate contractor to the Resident Engineer for approval.			
Traffic Management	• Flag-men to be posted when construction works are being undertaken adjacent to main or secondary roads. • Signage is to be displayed regarding construction activities. • Construction vehicles are to keep to the speed limits. • Regular maintenance of roads during construction phase.	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO
Socio-Economic, Health, Safety and Security	• Adequate ablution facilities and chemical toilet facilities must be placed on site and maintained in good order for the duration of the construction phase. Toilets must be secured to the ground. Toilets should be removed from site when construction is completed. Waste must be disposed of at a registered waste site. • Adequate clean drinking water must be available to construction staff at all times during the construction period. • An area must be demarcated for staff to conduct all necessary cooking activities. The site must be selected to ensure that there is no risk of fires. • Work crews are not to be housed on site. • Awareness training to be undertaken with the construction workers regarding health and environmental impacts from illegal dumping.	During construction	Full compliance with EMPr requirements	Contractor, ESO, ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	• Security to be provided after hours to protect equipment in the construction camp. • Excavations to be demarcated with orange netting. Excavations are to be checked daily, prior to work commencing, for any animals. • Shoring of excavations to ensure the safe workings of site staff. • The construction area must be demarcated and access controlled for the duration of the construction period. • Signage is to be displayed regarding construction activities. • Construction vehicles must adhere to speed limits and must be acutely aware of people walking and living in and around the construction activities. • A health and safety method statement/program is essential. • General risks associated with the construction activities should be addressed through compliance with the relevant health and safety procedures and regulations. • Access to and from the construction site(s) should be closely monitored and contractors should be required to make the necessary arrangements for the transport of workers to and from the site on a daily basis. • Visitors to report to the Site Office, and appropriate Protective Personal Equipment (PPE) to be worn by visitors. • Discuss the safety and security issues, as well as construction schedule with the local community policing forum and local SAPS.			

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	• Adjacent landowners are to be notified 14 days prior to construction commencement. • Fire-fighting equipment in proportion to the fire risk that is presented by the type of construction and other on-site activities and materials used on site is to be available and kept in good operating order at all times. • Any welding or other sources of heating of materials must be done in a controlled environment, under appropriate supervision, in such a manner as to minimise the risk of fires and/or injury to staff. • Smoking is not permitted on site. • A policy of employing local people should be implemented wherever possible. This will ensure that benefits of the construction are provided to local communities and will prevent an influx of job seekers to the site. This policy must be finalised before the hiring of sub-contractors. • Local sub-contractors should be employed wherever possible to maximise the localised economic benefits of the project. • A mechanism must be established to receive and address complaints from the staff.			
Operation: This section presents the environmental requirements for the operational activities of the development				
Impact on the adjacent seep wetland by operating a	• Where possible, install and maintain green stormwater infrastructure such as bioswales and rain gardens for the development located in the buffer zone. • Install and maintain oil-water separators in drains,	Design, construction and operational phases	Maintain or improve the ecological integrity and functioning of the wetland system and its buffer, despite nearby land transformation.	Applicant, PE, landscape architect, Engineers, facility manager, Aquatic

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
development within the buffer zone	especially in loading/unloading zones. • Install and maintain permeable pavement throughout the site where possible to promote infiltration. • Clean stormwater inlets and discharge points and conduct regular inspections (quarterly or after major storms). • Route runoff through as much vegetation as possible before it reaches the adjacent wetland. • Implement a Spill Prevention, Control, and response plan for the operational development. Train staff on spill response. Use secondary containment for fuel tanks, drums, and chemical storage. • Prohibit vehicle washing or chemical disposal on-site unless proper treatment systems are in place. • The attenuated stormwater on site must slowly soak into the ground instead of flowing directly into the downstream wetlands, to mimic natural groundwater recharge. • Maintain as much vegetated areas as possible in the buffer zone area to encourage infiltration. • Regularly check that hardscape stormwater systems do not redirect flow away from groundwater recharge areas. • Develop Standard Operating Procedures (SOPs) for handling and transferring potentially polluting materials. • Establish a 5 year monitoring plan to track: i. Wetland hydrology and water quality (e.g., conductivity, pH, nutrients).		• Ensure surface and subsurface water flows to the wetland are not significantly altered. • Maintain groundwater recharge rates and quality to support the seep. • Ensure no measurable increase in pollutants (e.g., hydrocarbons, nutrients, sediments) reaching the wetland. • No net loss of species richness or wetland-dependent flora/fauna due to project activities. • Prevent habitat fragmentation and minimize noise/light disturbance to sensitive species. • No increase in the distribution or density of invasive alien species within the buffer zone or adjacent wetland.	ECO

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	ii. Invasive species presence. iii. Adapt management strategies based on monitoring results and wetland health indicators.			
Impact on Subsurface Water flow Patterns	• No wetlands were identified on site, and no buffer is applicable. The absence of a wetland is confirmed by the investigation of the soil conditions exposed by the excavation. However, subsurface water flow takes place that feeds wetlands downslope. Due to the shallow slope of the landscape, the natural flow of stormwater is by means of laminar surface flow. • Subsurface water flow must be maintained otherwise it is likely that wetlands may form on site in the future. • To sustain the wetland downstream; the inflow of water into the soil (recharge) must be maintained by limiting or mitigating sealing of the soil surface, the flow down slope (interflow) must be maintained by preserving the flow paths, and, the discharge into the adjacent wetland (Lanseria X 81) must be preserved. • Placing roads on the property should be done with care as the property is subject to laminar water flow and subsurface movement of water. Culverts and rockfill must be used to allow stormwater flow and subsurface water flow. • No run-off should be allowed to leave the site directly; • Ensure stormwater channels do not cause erosion or other damage to open space areas; • Development footprints should be minimised, where possible, to reduce hardened surfaces which contribute	Design, construction and operational phases	Correct maintenance of subsurface water flow on site. Culverts, rockfill and permeable paving must be used to allow stormwater flow and subsurface water flow.	Applicant, PE, landscape architect

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	to stormwater generation; Stormwater management structures must be monitored and maintained throughout the operational phase.			
Site clean-up	Clear and completely remove all construction plant, equipment, storage containers, temporary fencing, temporary services, fixtures, waste and any other temporary construction works, from the site.	End of construction phase, beginning of operational phase	No waste or litter left on site	Contractor and developer. ECO and landscape architect
Vegetation and landscaping management	• Landscaping should be environmentally sensitive • Progressive reinstatement of disturbed areas on an ongoing basis, immediately after the specified construction activities for that area are concluded, must be implemented on site. • All topsoil removed for any reason during construction must be used for landscaping or to rehabilitate any areas disturbed by construction works, that will form a part of landscaping plans. • Indigenous grass and shrubs should be planted in areas which are devoid of vegetation and within the landscaped gardens • Landscaping of gardens, and all open areas must be undertaken by qualified landscapers, and only indigenous trees, grasses and other plants are to be used for landscaping purposes and must be water-wise Indigenous plant species. • Hydroseed any open areas devoid of vegetation. • Remove all exotic and invasive plants in the area (as required), as well as within the road reserves. • Rainwater harvesting should be undertaken and used	Operational Township	A well-designed landscaping strategy in the operational township which contributes to improving the biodiversity of the site, climate resilience, water efficiency, and overall environmental sustainability. Integrating green infrastructure and sustainable land management to reduce environmental impacts.	Applicant and landscape architect

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	for garden watering			
General Township Waste Management	• All waste will be disposed of by the municipality, as agreed by the service agreements and bulk service contributions. • General waste generated by the development will be disposed of at a registered landfill site as agreed by the municipality • General waste must be sorted on site into the various waste types and recycled accordingly	Operational phase	• A well-implemented waste management strategy • Improve public health • Reduce pollution • Conserve resources • Create economic opportunities through recycling and reuse initiatives. By adopting sustainable waste practices, the township can move towards a circular, low-waste economy that benefits both the environment and the community.	Applicant Development Manager Local Municipality
Energy and water consumption	• Energy saving methods as per the BAR must be implemented over a long-term period for the operational cargo warehouses. • Alternative energy sources such as gas and solar panels must be considered for the long-term operation of the township. • Install low flow faucets, smaller toilets, and low flow showerheads in all office areas of the developments • Install Geysers timers • Install Solar geysers • Installation of Solar panels with battery backup and inverter systems to run a lights and other operations	Operational phase	Incorporation of alternative energy sources and low water use into all buildings.	Applicant, PE Development Manager Architect

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	within the various warehouses and for the various industries. • Install Sky lights, to enhance natural light use in the core of the building. • Install LED lighting around and inside all buildings. LED's use less energy and last longer than traditional incandescent bulbs. • Planting of trees in road reserves and garden areas to lessen the effect of creating a heat island within the development footprint.			
Erosion and stormwater management	• Attenuation ponds must be maintained and desilted as and when required.	Operational phase	• Manage runoff to prevent flooding • Reduce pollution • Support groundwater recharge • Water quality improvement sustainable drainage • Biodiversity enhancement	Applicant, PE Development / facilities Manager
Sewer treatment plant - effluent discharge	• The package plant will be privately operated, and a Management Authority for the Industrial Estate will be registered to fund and manage maintenance of the plant. A comprehensive maintenance contract will be entered into between Package Plant supplier/ manufacturer and the Managing Agent to maintain the plant. This maintenance must consist of a bi weekly inspection, cleaning of the screens, disposal of non biodegradables from the screen and any replacement or corrective repairs where necessary. A daily inspection by an employee or member of the Managing Agent to ensure the pumps are operating is required. Adequate	Operational phase	Protect water quality, minimize environmental pollution, efficient wastewater treatment, compliance with regulatory standards.	Applicant, PE Development / facilities Manager

ASPECT	ENVIRONMENTAL ACTIONS	TIMING	TARGET	RESPONSIBILITY
	training by the Package Plant manufacturer must be provided to this person. Testing of the effluent on a weekly basis for the first 6 months, and then on a monthly basis. The water tests must be conducted by an accredited specialist and analysed at an accredited laboratory. Frequent testing of the effluent to ensure the quality is within the DWS limits prescribed will be the greatest mitigating fact to ensure a high quality of effluent (i.e. adequately treated), and does not impact on downstream properties, biota, biodiversity and general pollution.			
Final ECO Audit and sign-off	• A close-out audit must be conducted by the ECO following the post-construction and rehabilitation activities.	Once all construction activities on site are completed	Full compliance with the EMPr	ESO, ECO

15. DECLARATION OF ADHERENCE TO THE ENVIRONMENTAL MANAGEMENT PLAN

All persons involved must be made aware of the environmental goals and policy of the Applicant, and of the appointed project contractors, and must be encouraged to develop a commitment to compliance with the environmental legislation.

The appointed Contractor must sign declarations of adherence to the EMPr, stating the following:

- That the conditions of the authorisation were brought under their attention and that they have read and understood the contents of the Environmental Management Programme, all its contents, and agree to adhere to all the specified requirements.
- That they understand their responsibilities in terms of enforcing and implementing the Environmental Specifications as set out in the various documents for the project site.
- That they also undertake to inform all persons under their supervision of such specifications.

See Appendix 7

APPENDIX 1: LANSERIA X 79 LAYOUT PLAN

APPENDIX 2: EAP PROFILE, CV AND DECLARATION OF INDEPENDENCE

1. DECLARATION BY THE EAP

I, _____, declare that –

- I act as the independent environmental assessment practitioner in this application;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I will take into account, to the extent possible, the matters listed in Regulation 13 of the Regulations when preparing the application and any report relating to the application;
- I undertake to disclose to the applicant and the Competent Authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the Competent Authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the Competent Authority, unless access to that information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority;
- I will perform all obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;

- I have a vested interest in the proposed activity proceeding, such vested interest being:

_____

_____

_____

_____

Signature of the Environmental Assessment Practitioner

Name of Company:

Date

2. UNDERTAKING UNDER OATH/ AFFIRMATION

I, _____, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Environmental Assessment Practitioner

Name of Company

Date

Signature of the Commissioner of Oaths

Date

APPENDIX 3: METHOD STATEMENT FOR THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP

The MS should be submitted at least 7 working days prior to the commencement of work to the ECO.

For each instance where it is requested that the Contractor submit a MS to the satisfaction of the ECO, the format should clearly indicate as a minimum the following:

- Responsible person (Name and Identity Number) and an alternative (Name and Identity Number);
- The applicable requirements provided in all legislation and policies which have a bearing on the proposed activities;
- Training Requirements;
- Timing of activities as per the Project / Construction Schedule;
- Materials, plant and equipment to be used;
- Proposed construction procedure, including the order in which the activities making up the procedure will be carried out, designed to implement the relevant environmental specifications;
- The system to be implemented to ensure compliance with the above;
- Personal Protection Equipment (PPE) required;
- A detailed description of the process of work, methods and materials;
- Emergency Procedures;
- Response in the case of a non-compliance; and
- Other information deemed necessary by the ECO.

All MS must be signed by the Engineer; and works may not commence until the MS has been approved by the ECO. All MS will form part of the CEMPr documentation and are subject to all terms and conditions contained within the CEMPr main document.

The following MS must as a minimum be prepared by the Contractor for approval:

1. **Site Layout**: The graphical representation with detailed notes of the location, layout and method of establishment of the construction camp must be provided and must include the following:
    - All Contractor's buildings, and/or offices;
    - Lay down areas;
    - Vehicle and plant storage areas;
    - Workshops, if required and approved by ECO;
    - Fuel storage and dispensing areas, if required and approved by ECO;
    - Cement/concrete batching areas, if required and approved by ECO (including
    - the methods employed for the mixing of concrete and particularly the
    - containment of runoff water from such areas and the method of transportation

- of concrete);
- Other infrastructure required for the running of the project.

2. **Access Routes**: Details, including a drawing, showing where and how the access points and routes will be located and managed must be provided in a MS. Details of fences and gates affected or used during the construction activities, including a drawing showing the location of fences and access gates must be provided.

3. **Pollution control**: Expected solid waste types, quantities, methods and frequency of collection and disposal as well as location of disposal sites must be identified and stated in a MS. The MS shall further include methods of minimising, controlling, collecting and disposing of contaminated water, and details of any hazardous substances/materials to be used, together with the transport, storage, handling and disposal procedures for the substances.

4. **Safety considerations**: The Contractor shall provide details identifying what safety precautions will be implemented to ensure the safety of all staff, and the general public at large, on site during the life of the project. This will include protective clothing requirements for all types of construction activities on site, including protection against dust, noise, falling objects, and work associated with electricity and working at heights.

5. **Emergency procedures**: The Contractor shall provide details regarding all relevant emergency procedures that will be implemented for fire control and accidental leaks and spillages of hazardous substances (including fuel and oil). The Contractor shall further include details of risk reduction measures to be implemented including firefighting equipment, fire prevention procedures and spill kits.

6. **Waste management control**: The Contractor shall provide details regarding how solid and liquid waste generated on the construction site and site camp will be collected, stored, transported and disposed of. Details of any service provider(s) appointed to manage this task must also be provided.

7. **Storm water and erosion control**: The Contractor shall provide details of how storm water emanating within or adjacent to the construction site may impact on construction activities. Details on how the Contractor will deal with storm water runoff on site, must be provided. Details of any service provider(s) appointed to manage this task must also be provided.

Description of the Activity:			
Project Name	**LANSERIA X 79**	**Project Ref:**	
Site address / location		**Start Date / Time:**	
		Finish Date / Time:	
	Name	**Responsibility**	
Personnel Involved			
Works Supervisor:		Contact Details:	
WHAT work is to be undertaken			
WHERE are the works to be conducted			
HOW are the works to be undertaken			
Specific identified impacts to be avoided on site			

Note: **please give too much information rather than too little. Please ensure that issues such as emergency procedures, hydrocarbon management, wastewater management, access, individual responsibilities, materials, plant used, maintenance of plant, protection of natural features etc. are covered where relevant**.

APPENDIX 4: DECLARATION OF ADHERENCE TO THE METHOD STATEMENT FOR THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP: *CONTRACTOR*

I, _____, in my capacity as

_____ understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to and with approval by the Engineer, and that the SHE Coordinator, Construction Manager and ECO will audit my compliance with the contents of this Method Statement, pertaining to the **LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP** located on **Holdings 5 and 6, Sunrella Agricultural Holdings, City of Johannesburg,**

Signed:_____

Date:_____

APPENDIX 5: ENVIRONMENTAL MANAGEMENT SITE PLAN FOR THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG

The following issues must be addressed and shown on the **annotated Environmental Management Site Plan**, *prior to construction activities commencing on site:*

PLANNING ISSUE	DESCRIPTION	RESPONSIBLE PARTY
Sequence of events	Description of the nature of the process required. Briefly describe the sequence of events that will take place from the time that the contractor moves onto site to the time when the site is handed over to the Project Developer.	Applicant, Contractor, Resident Engineer
Health and safety	• Potential risks and hazards and precautions that will be taken. • Cooking area, hazardous materials site, first aid kit, fuel store, security issues, fire control. • Safety of surrounding sensitive receptors (e.g. residents and road • users).	Applicant, Contractor, Resident Engineer
On site toilets	• How many required for the particular development? • How long are the toilets required on site? • Location of toilets (Site Plan)	Contractor, Resident Engineer
Workforce	• Number of on-site workers • Training of workforce in terms of environmental awareness • Management of workforce, particularly sub-contractors	Contractor, Resident Engineer
Transport and traffic	• Transport required for site workers • Routes to be used by construction vehicles	Applicant, Contractor, Resident Engineer
Infrastructure and associated equipment	• Nature and extent of infrastructure construction	Contractor, Resident Engineer
Earthworks/cleaning	• Volume of material to be excavated/cleaned • Duration of operations • Where stocks to be kept on site (Site Plan) • How long to be kept on site	Contractor, Resident Engineer

	• Where, when and how to be disposed of	
Equipment needed for construction activities	• Area required for material and equipment storage • Duration of works • Nature of equipment and necessary materials	Contractor, Resident Engineer
Drinking water	• Quantity required • Duration of period in which required • Source of water • Location of potable water (Site Plan)	Applicant, Contractor, Resident Engineer
Cooking/Eating/Rest areas	• Area required • Equipment required e.g. gas stoves, matches etc. • Location - must take into consideration the vegetation conditions • (Site Plan)	Applicant, Contractor, Resident Engineer
Existing structures	Indication of location of any structures that need to be removed and/or protected	Applicant, Contractor, Resident Engineer
Life of project	• Working hours • Time frame	Applicant, Contractor, Resident Engineer
Construction site	• Work area required • Location of construction site and work area (Site Plan)	Applicant, Contractor, Resident Engineer
Environmentally sensitive areas and possible environmental risks associated with construction activities	A training programme on possible environmental risks that may result from construction activities and how to deal with these (including a reporting structure) must be made available prior to construction commencing	Applicant, Contractor, Resident Engineer
Waste management	• Litter drums - number, type, size, location (Site Plan) • Construction of a waste transfer station within the site boundaries • Closest registered waste disposal site (Location map) • Waste management plan • Recycling / material re-use options	Applicant, Contractor, Resident Engineer

Appendix 6: ENVIRONEMNTAL COMPLAINTS RECORD SHEET: FOR THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG
COMPLAINT RAISED BY:
COMPLAINT:
PROPOSED REMEDIAL ACTION:
Signature: _____ Date: _____
NOTES BY ESO:
ECO: _____ Date: _____ Site Manager: _____ Date: _____
NOTES BY ECO:
ECO: _____ Date: _____ Site Manager: _____ Date: _____

APPENDIX 7: DECLARATION OF ADHERENCE TO THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN FOR THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG: *APPLICANT*

I, _____, in my capacity as **applicant and land owner,** hereby declare my adherence to the contents of the CEMPr compiled for **THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG**, Construction Activities. I declare that:

- I have read and understood the contents of the Construction Environmental Management Programme and agree to adhere to all the specified requirements.
- I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications as set out in the various documents for the project site.
- I undertake to inform all persons under their supervision of such specifications.

Signed: Date:

APPENDIX 8: DECLARATION OF ADHERENCE TO THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN FOR THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG: *CONTRACTOR*

I, _____, in my capacity as the **appointed contractor,** hereby declare my adherence to the contents of the CEMPr compiled for the **LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG**, Construction Activities. I declare that:

- I have read and understood the contents of the Construction Environmental Management Programme and agree to adhere to all the specified requirements.
- I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications as set out in the various documents for the aforementioned site.
- I undertake to inform all persons under their supervision of such specifications.

Signed: Date:

APPENDIX 9: DECLARATION OF ADHERENCE TO THE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN FOR THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG: *RESIDENT ENGINEER*

I, _____, in my capacity as the **appointed Resident Engineer** (RE), hereby declare my adherence to the contents of the CEMPr compiled for **THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG**, Construction Activities. I declare that:

- I have read and understood the contents of the Construction Environmental Management Programme and agree to adhere to all the specified requirements.
- I understand my responsibilities in terms of enforcing and implementing the Environmental Specifications as set out in the various documents for the aforementioned site.
- I undertake to inform all persons under their supervision of such specifications.

Signed: Date:

APPENDIX 10: DECLARATION OF ADHERENCE TO THE FOLLOWING DUTIES FOR THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG : *ENVIRONMENTAL SITE OFFICER (ESO)*

I, _____, in my capacity as

_____ hereby declare my understanding and adherence to my duties as follows: Liaison with the appointed ECO; Ensuring environmental awareness among members of the workforce; ensuring that the Contractor/s and members of the construction workforce are aware of the requirements of the CEMPr; the daily on-site implementation of the CEMPr; monitoring inappropriate behaviour from the work force that will cause negative environmental impacts, including pollution and environmental incidents; and the implementation of corrective action, pertaining to **THE LANSERIA X 79 INDUSTRIAL 3 TOWNSHIP LOCATED ON HOLDINGS 5 AND 6, SUNRELLA AGRICULTURAL HOLDINGS, CITY OF JOHANNESBURG.**

Signed:_____

Date:_____

ANNEXURE 11: WASTE MANAGEMENT PLAN

A Waste Management Plan (WMP) outlines measures and procedures for the appropriate handling, storage and disposal of wastes generated during the entire project lifecycle (pre-construction, construction and operational phases).

The objectives of the WMP are to:

- Formalise waste handling, transfer and disposal activities associated with waste from the Industrial township;
- To prevent inappropriate management of waste and associated risk of pollution of the environment;
- To facilitate waste minimisation entailing avoidance, reduction, reuse, recycling or treatment before disposal;
- To streamline waste segregation, storage, and disposal and promote resource recovery from waste;
- To contain, control and dispose of waste in accordance with the required waste management practices (e.g. waste segregation);
- To define responsibilities for waste management at the various levels of operation associated with the development;
- To provide a framework for the selection of waste management service providers in line with cradle to grave principles.
- To provide actions and guidelines to ensure that waste management is undertaken in line with Existing South African waste management legislation, waste management guidelines and policies; and international best practise (Waste Hierarchy).

In accordance with international trends, the management of all waste streams that will be generated at the warehouse should demonstrate support for the Hierarchy of Waste Management (HWM), which aims to promote the re-use and recycling of wastes, giving effect to the concept of 'cradle-to-cradle' waste management. The aim of the Waste Management Plan is to minimize the amount of waste disposed of, and as such, a waste hierarchy is followed:
Prevent → Minimise → Reuse → Recycle → Recover, and only then, → Dispose.

As this section forms part of the CEMPr, the overall responsibility of ensuring compliance with the Waste Management Plan ultimately lies with the Applicant.

Planning phase*: Permits and permissions*

- In order to comply with legislation, the following storage volumes may not be exceeded without a Waste Management License
  - General Waste: -100m3
  - Hazardous Waste: 35m3
- Finalize agreements and programmes with the Local Municipality regarding the disposal of domestic waste at the nearest landfill, particularly in terms of initial cleanup volumes (existing dumping) required for this rehabilitation project.

Construction Phase:

Good management practices

- Ensure that all personnel are familiar with waste management requirements on site;
- An adequate number of refuse bins must be provided at the construction sites. refuse bins must be equipped with a closing mechanism to prevent their contents from blowing out and from scavenging animals.
- Ensure that personnel make use of the refuse bins provided;
- Empty refuse bins for disposal at least once per week, but more often if required;
- Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.
- If there is a shortage of space and not enough room for multiple skips the principal contractor should employ a licensed waste management company to deal with waste,
- Onsite recycling containers and/or areas must be clearly marked.
- The working areas and storage sites must be cleared of litter on daily basis. The contractor will maintain 'good housekeeping' practises as ensure that all work sites and construction camp are kept tidy and litter free.
- Dispose of solid waste at the nearest, applicably licensed recycling centre, salvage yard or landfill site;
- All waste must be transported in an appropriate manner (e.g. plastic rubbish bags) to the approved waste site.
- The contactor may not dispose of any waste and / or construction debris by burning, or by burying.
- Safe disposal waybills for all waste and material loads removed from the site must be kept on file.
- Complete waste transfer notes before any waste leaves the site.
- Ensure all waste service providers have a valid waste carrier's registration certificate.

Non-hazardous construction waste

- Segregate different types of waste as they are generated using different skips where possible (General wastes, non-hazardous wastes and hazardous wastes). At a minimum there should be skips for wood, metals, inert and mixed materials,
- Collect maintenance and domestic refuse (scrap metal, packaging materials etc.) in appropriate bins for recycling or send to landfill for disposal in an approved manner.
- Recycle suitable spoil, demolition materials, all pruning, and surplus construction material arising from the works on site to avoid the need to transport materials.
- Metal waste has commercial value and is to be sold on to a scrap metal contractor for recycling purposes.
- Wood waste includes oversized cable reels, wooden packaging boxes, palettes and other wood materials. Palettes in good condition may be reused and are to be returned to materials suppliers on a return system – this will need to be negotiated with the relevant suppliers. Damaged wood waste is to be donated to local communities.

Hazardous construction waste

Hazardous waste can be defined as waste, which can, even in low concentrations, have significant adverse effects on public health and/ or the environment.

- The disposal of hazardous waste must comply with all relevant Regulations, Norms and Standards pertaining to waste classification in order to ensure disposal at the correct landfill class.
- Avoid the generation of hazardous waste wherever possible through procurement processes e.g. purchasing of less toxic / environmentally friendly products.
- Petroleum, chemical, harmful and hazardous waste must be stored in enclosed, bunded areas. The bunded areas shall be clearly marked. Such waste shall be disposed of off-site at a licensed hazardous waste disposal site.
- Forecast and prevent potential situations in which accidents and spills can mitigate against unwarranted waste emissions.
- Hazardous waste may be temporarily stored on site in vessels equipped with secondary containment structures to prevent contamination of soil, groundwater and surface waters due to accidental spills or releases.
- Hazardous waste must be separated at source from the general waste stream. Where possible, all hazardous wastes, including hydrocarbon wastes such as oils, should be recycled either by a recognized recycling company or returned to the supplier.
- All hazardous wastes that cannot be reused or recycled should be labelled correctly and stored in the designated waste storage area until collected for correct disposal.
- Load and unload any solid hazardous materials in a manner that reduces potential spills.
- Ensure that a spills containment kit is available on site and that personnel are trained in spills clean up procedures.
- No spills may be hosed down into a storm water drain or sewer, or into the surrounding natural environment.
- Immediately clean leaks and spills of hazardous substances and dispose of as hazardous waste. The ESO and ECO should be notified immediately if a hazardous waste spill occurs, to ensure proper clean-up and disposal.
- Any contaminated soil / substrate must be removed and stored in a skip until it can be disposed of at a permitted disposal site.
- Report major spills to the regional DWS office.
- Hazardous waste disposal must be undertaken by an approved waste contractor, and waste must be disposed of at a permitted hazardous waste disposal facility on a regular basis (H:H or H:h – landfill operator to be contacted for verification). Ensure that all transportation and disposal / recovery permits and licenses are held by the service provider.
- All hazardous waste transported from the site must be reconciled with safe disposal certificates to be issued by the waste management service provider. These should be kept on file for inspection by the environmental authorities if required.

Sewage and effluent

- Ensure that sufficient numbers of mobile toilets are available on site and that these are located beyond the buffer zones.
- The location of chemical toilets or soak-aways should be put as far as possible from any wetland, watercourse or drainage line.
- Ensure that mobile toilets are maintained in a sanitary and operational state. Service slips need to be kept on file for verification
- Waste from ablution facilities must be regularly removed and care must be taken to ensure that there is no spillage.

Operational Phase

Waste management areas

- Waste must be transported from the point of generation directly to the centralised waste storage area where it can be safely stored prior to offsite disposal.
- The operator must obtain consent / confirmation from the nearest landfill (or similar) to dispose their non-recyclable waste at the facility.
- Duty of care obligations should be adopted and enforced, meaning that only reputable waste transport companies and permitted waste disposal facilities are used.
- Recordkeeping of the waste types and quantities must be as accurate as possible. Landfill waybills must be obtained and kept on file.
- Arrangements must be in place for the regular maintenance and cleaning of waste/recycling storage areas.

Landscape and organic waste

- Develop a comprehensive system for waste separation at the relevant generation points.
- Separate waste into items, which can be reused, composted, or recycled, and send the remaining portion to the general waste stream for disposal at landfill.

General waste

- Adopt waste reduction procurement philosophy, also known as "Greener purchasing", “Pre-cycling”, or “eco/green procurement”.
- Staff should be made aware of the aim to recycle waste by means of posters, training and staff meetings.
- Visitors/residents should be made aware of the recycling programmes by means of recycling in strategic locations.
- Implement a ‘sort-at-source’ approach to waste management, and separate recyclable waste from non-recyclable waste;
- Separate viable recyclable components from the general waste stream prior to disposal. Recyclables that are typically recovered from general waste include metals, plastics, glass, and paper / cardboard.
- Waste storage receptacles must be covered or lidded to prevent scavenging by wild animals and vermin, and to prevent waste from being windblown into the adjacent open areas.

- Undertake regular clean-ups and litter removal across the entire site;
- Skips / receptacles should be emptied on a weekly basis to prevent the formation of odour.
- Ensure that the waste is removed by a suitably qualified waste service provider and that the relevant documentation with proof of proper waste disposal is available.

- A manifest indicating the volume (monthly) of disposed general waste should be kept on file.

APPENDIX 12: ENVIRONMENTAL AWARENESS PLAN

Reasons why should we look after the environment

- We have a right to a clean environment
- A clean environment is essential to healthy living
- All our basic needs come from the environment
- A contract has been signed – development vs the environment
- Penalties / fines could be issued

How to look after the environment

- Report issues
- Teamwork
- Follow the set rules and guidelines (EA, EMPr, Method statements etc.)
- Conserve, reuse and recycle

WORKING AREAS

Workers & equipment must stay inside the site boundaries at all times

ANIMALS

- Do not injure or kill any animals on the site
- Ask your supervisor or Contract's Manager to remove animals found on site

SMOKING AND FIRE

- Put cigarette butts in a rubbish bin
- Do not smoke near gas, paints or petrol
- Do not light any fires without permission
- Know the positions of fire fighting equipment
- Report all fires
- Do not burn rubbish or vegetation without permission

PETROL, OIL AND DIESEL

- Work with petrol, oil & diesel in marked areas
- Report any petrol, oil & diesel leaks or spills to your supervisor
- Use a drip tray under vehicles & machinery
- Empty drip trays after rain & throw away where instructed

DUST

Try to avoid producing dust –

Use water to make ground & soil wet

NOISE

- Do not make loud noises around the site, especially near schools and homes
- Report or repair noisy vehicles

TOILETS

- Use the toilets provided
- Report full or leaking toilets

EATING

- Only eat in demarcated eating areas
- Never eat near a river or stream
- Put packaging & leftover food into rubbish bins

RUBBISH

- Do not litter – put all rubbish (especially cement bags) into the bins provided
- Report full bins to your supervisor
- The responsible person should empty bins regularly

TRUCKS AND DRIVING

- Always keep to the speed limit
- Drivers – check & report leaks and vehicles that belch smoke
- Ensure loads are secure & do not spill

EMERGENCY PHONE NUMBERS

Know all the emergency phone numbers:

- Ambulance:
- Fire:
- Police:

FINES AND PENALTIES

- Spot fines of between
- Your company may be fined
- Removal from site
- Construction may be stopped

PROBLEMS - WHAT TO DO!

- Report any breaks, floods, fires, leaks and injuries to your supervisor
- Ask questions!

ENVIRONMENTAL AWARENESS TRAINING
REGISTER: LANSERIA X 79
DATE:_____

NAME / ATTENDEE	COMPANY REPRESENTED	CONTACT NUMBER	SIGNATURE