

ENVIRONMENTAL MANAGEMENT PROGRAMME

RIVERSIDE VIEW EXTENSION 126 TOWNSHIP

**PART OF THE REMAINING EXTENT OF PORTION 5 (A PORTION OF PORTION 4) OF
THE FARM ZEVENFONTEIN NO. 407 JR.**

AUTHORITY REFERENCE: GAUT 002/25-26/E0196



MARCH 2026

DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA Regulations has that meaning, unless the context requires otherwise –

“clearing” means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified;

“construction camp” is the area designated for critical construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;

“contractor” has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the Environmental Management Programme and that Method Statements are implemented as described.

“hazardous substance” is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995;

“method statement” means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour, and method(s) the Contractor proposes to use to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO can assess whether the Contractor's proposal as per this specification and/or will produce results per this specification;

The method statement must cover applicable details about:

- (i) Construction procedures;
- (ii) Plant, materials and equipment to be used;
- (iii) Transporting the equipment to and from the site;
- (iv) How the plant/material/equipment will be moved while on site;
- (v) How and where the plant/material/equipment will be stored;
- (vi) The containment of leaks or spills of any liquid or material that may occur;
- (vii) Timing and location of activities;
- (viii) Compliance/non-compliance; and
- (ix) Any other information deemed necessary by the Project Manager.

“slope” means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units;

“solid waste” includes construction debris, hazardous waste, excess cement/concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers);

“spoil” means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works;

“topsoil” means a varying depth (up to 300mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility, and composition of the soil and

“works” means the works to be executed in terms of the Contract.

ACRONYMS AND ABBREVIATIONS

CA	Competent Authority
cEO	Contractors Environmental Officer
dEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EAR	Environmental Audit Report
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme Report
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
MSDS	Material Safety Data Sheet
RI&APs	Registered interested and affected parties

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1 INTRODUCTION AND BACKGROUND

1.1 Background

In accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), an application for environmental authorization (EA) that requires an environmental impact assessment (EIA) must also be accompanied by an environmental management programme (EMPr). The EMPr is a crucial component of the application process and must contain all information as specified in Appendix 4 of the 2014 Environmental Impact Assessment Regulations, as amended.

Century Property Developments (Pty) Ltd has applied for the establishment of a new township, to be known as Riverside View Extension 126, along with associated infrastructure. The proposed development triggers activities listed under the EIA Regulations of 2014 (as amended), necessitating a basic assessment process for approval.

1.2 Site Location and Layout

The application site lies within region A of the City of Johannesburg Metropolitan Municipality, covering about 2,277 hectares inside the urban development boundary. It occupies part of Portion 5 (from Portion 4) of the farm Zevenfontein No. 407 JR in Gauteng province. The site is near Helderfontein Residential Estate (east of the Jukskei River), Riverside View Extensions 4, 6, 7, 19, and 20, K56 and Treesbank Agricultural Holdings (south), Glenferness Agricultural Holdings (west), and Reddham House School (north)..

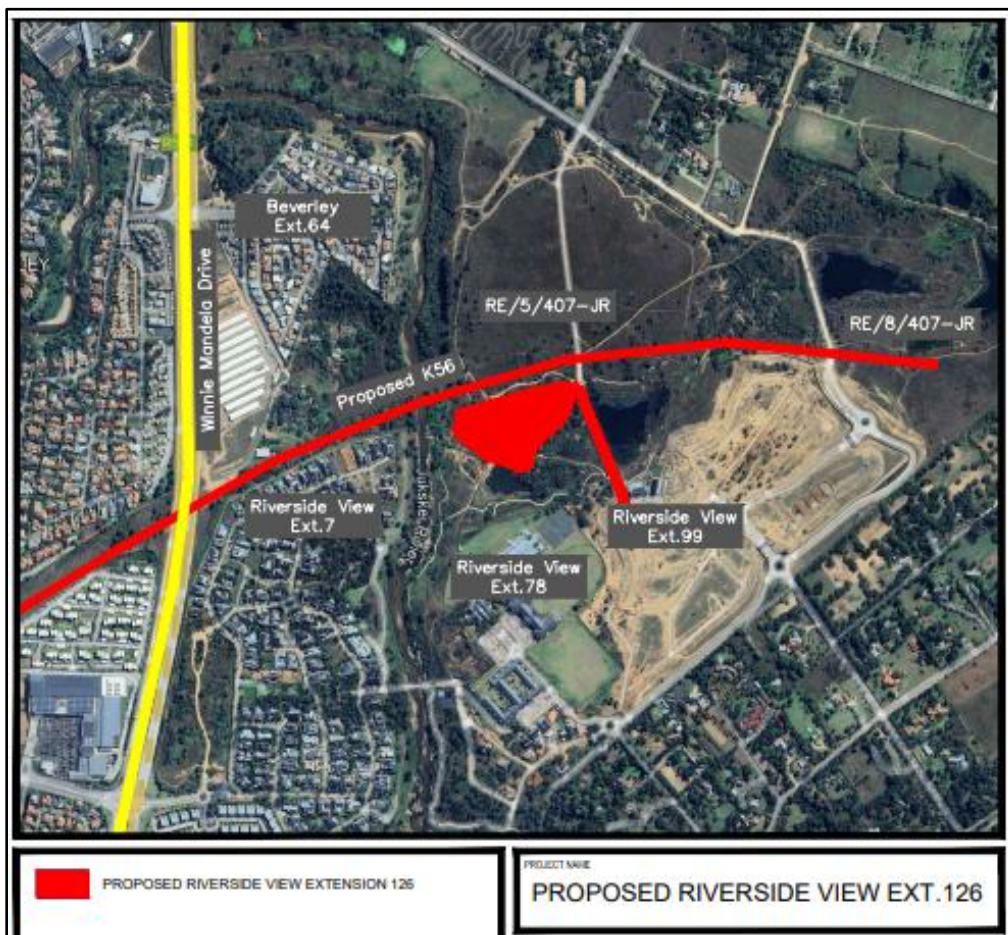


Figure 1: Locality Map

1.3 Layout Plan

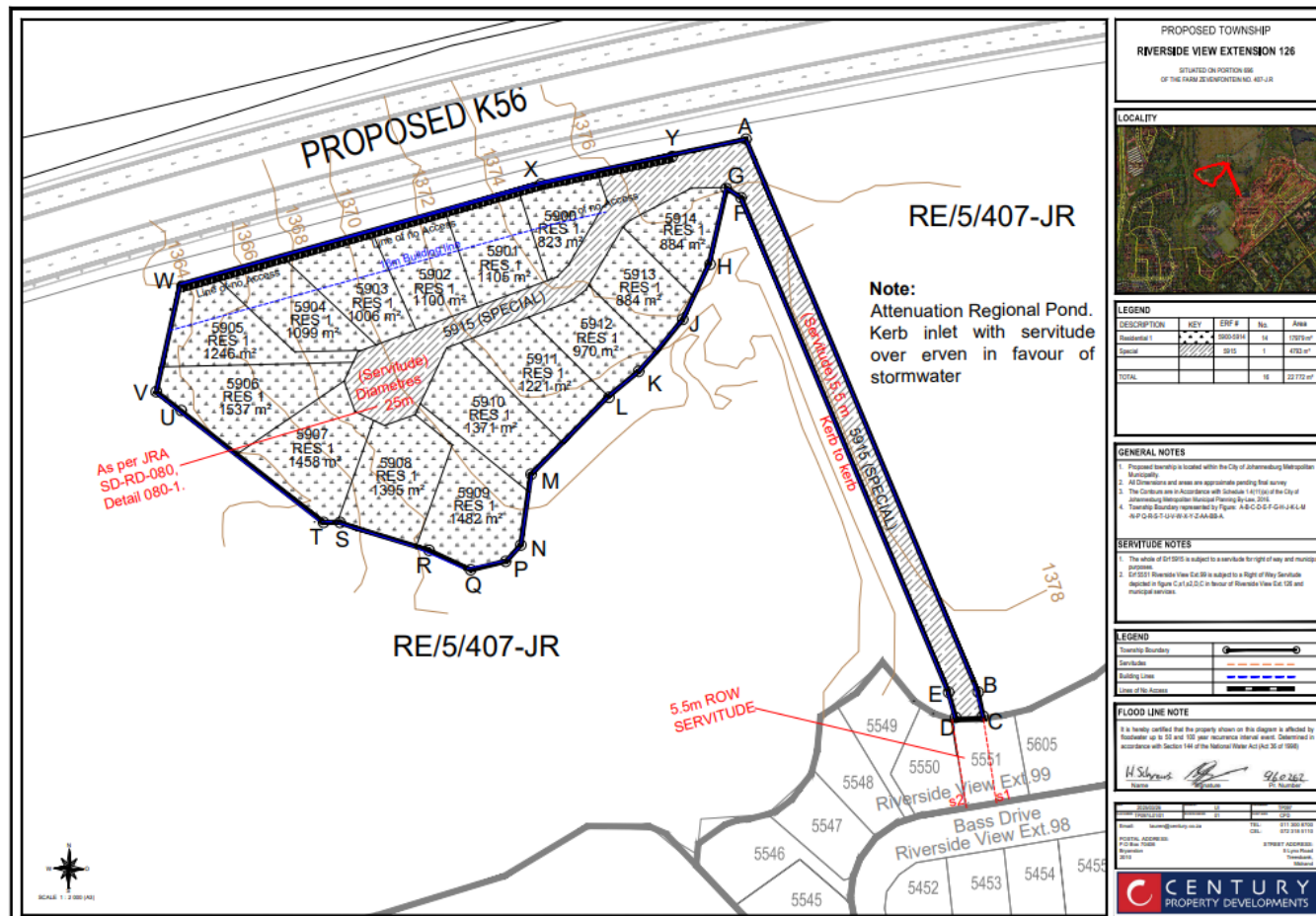


Figure 2: Layout Plan

1.4 Details of the Applicant

Table 1: Details of the Applicant

Aspect	Details
Applicant	Century Property Developments (Pty) Ltd
Representative	Harm Schreurs
Designation	Project Manager
Physical address	5 Lynx St, Treesbank AH, Midrand, 1683
Postal address	P O Box 70406, Bryanston, 2021
Telephone	011 300 8700
Email address	harm@century.co.za

1.5 Details of the EAP

To ensure full compliance with the EIA Regulations, 2014, promulgated under section 24 (5) of the National Environmental Management Act, 1998 NEMA (Act No. 107 of 1998) (NEMA) and environmental best practice, Century Property Developments (Pty) Ltd appointed Nali Sustainability Solutions (Pty) Ltd as the independent Environmental Assessment Practitioner (EAP) to manage the application process. Details of the EAP are provided below.

Table 2: Details of the EAP

Aspect	Details
Name	Nali Sustainability Solutions (Pty) Ltd
Lead EAP	Mr Pirate Ncube (Lead)
Physical Address	65 Country Club Drive, Irene Farm Villages, Centurion
Postal Address	P Bag X1, Stand 1829, Irene Farm Villages, Centurion, 0045
Other contact details	Tel: 0824517120; Fax: 086 694 1178 Email: pirate@nalisustainability.co.za
Expertise/ experience	Registered EAP with more than 25 years of experience in environmental management, including environmental impact assessments and reviews, ecological management plans, and environmental compliance monitoring and reporting. Served in various bodies, including the DFA Tribunal, Environmental Advisory Committee, and MEC Appeals Advisory Panel. A qualified Town Planner with a Masters in Real Estate and an MBA.

2 PURPOSE, SCOPE AND OBJECTIVES OF THE EMPR

2.1 Purpose and Objectives of the EMPr

An EMPr is an environmental management tool designed to prevent avoidable negative impacts during a project's construction, operation, and decommissioning, while enhancing positive outcomes. EMPrs help ensure that actions identified in Environmental Impact Assessments are implemented throughout the project.

EMP objectives include:

- Meeting regulatory requirements at all levels
- Allocating sufficient resources based on project impact
- Monitoring environmental performance as impacts arise
- Adapting to project changes not covered by the EIA
- Addressing unforeseen events
- Supporting continuous improvement in environmental performance

2.2 Scope of the EMPr

The scope of an EMPr covers:

- Setting environmental management goals for each project phase to maximise benefits and reduce negative impacts.
- Outlining actions to meet these objectives, specifying methods, responsibilities, timelines, resources, monitoring, targets, and processes for handling changes or emergencies.
- Defining institutional roles, communication, and reporting procedures for EMP implementation.
- Explaining how the EMP aligns with legal requirements.
- Detailing record-keeping, reporting, review, auditing, and updates necessary for the EMP.

3 ROLES AND RESPONSIBILITIES

Effective implementation of the EMPr depends on established and clear roles, responsibilities, and reporting lines within an institutional framework. This section details the various environmental roles and reporting lines. However, if no specific person, for example, an environmental control officer (eCO), is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the eCO are undertaken.

Table 1: Guide to roles and responsibilities for the implementation of an EMPr

Responsible Person(s)	Role and Responsibilities
Developer's Project Manager (DPM)	<u>Role</u> The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform his responsibilities, is integrated as part of the project team while remaining independent. <u>Responsibilities</u> - Be fully conversant with the conditions of the EA. - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s). - Issuing site instructions to the Contractor for corrective actions is required. - Monitor the implementation of the EMPr throughout the project using site inspections and meetings. - Overall management of the project and EMPr implementation; and - Ensure periodic environmental performance audits are undertaken during the project's implementation.
Developer Site Supervisor (DSS)	<u>Role</u> The DSS reports directly to the DPM, oversees site works, and liaises with the contractor(s) and the ECO. The DSS is responsible for the day-to-day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr. <u>Responsibilities</u> - Ensure all contractors identify a contractor's Environmental Officer (eCO). - Must be fully conversant with the conditions of the EA. Oversees site works and liaises with Contractor, DPM and eCO. - Must ensure that all landowners have the relevant contact details of the site staff, eCO, and - Issuing site instructions to the Contractor for corrective actions required. - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.

Environmental Control Officer (ECO)	<u>Role</u> - The ECO should have appropriate training and experience implementing environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems, suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. - The ECO provides feedback to the DSS and Project Manager who report to the Contractor and potential Registered Interested & Affected Parties (RI&AP's), as required. regarding all environmental matters. The Contractor, eCO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications set out in the EA and EMPr. - Issues of non-compliance raised by the ECO must be taken up by the Project Manager and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications, and requirements with a cost implication (i.e., those deemed to be a variation, not allowed for in the Responsible Person(s) Role and Responsibilities Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required. <u>Responsibilities</u> The responsibilities of the ECO will include the following: - Be aware of the findings and conclusions of all EA related to the development. - Be familiar with the recommendations and mitigation measures of this EMPr. - Be conversant with relevant environmental legislation, policies and procedures and ensure compliance. - Undertake regular and comprehensive site inspections/audits of the construction site according to the generic EMPr and applicable licenses to monitor compliance as required. - Educate the construction team about the management measures in the EMPr and environmental licenses. - Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective. - Monitor the performance of the Contractors and ensure compliance with the EMPr and associated Method Statements. - In consultation with the Developer, the Site Supervisor orders the removal of person(s) and/or equipment that contravene the specifications of the EMPr and/or environmental licenses.
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	- Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns; - Compile a regular environmental audit report highlighting any non-compliance issues and satisfactory or exceptional compliance with the EMPr. - Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO). - Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc.) and corrective and preventive actions. - Checking the cEO's public complaints register in which all complaints are recorded, and action is taken. - Assisting in the resolution of conflicts. - Facilitate training for all personnel on the site. This may range from carrying out the training to reviewing the Contractor training programmes. - In case of non-compliance, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance. - Maintenance, update and review of the EMPr. - Communicate all modifications to the EMPr to the relevant stakeholders.
developer Environmental Officer (dEO	<u>Role</u> The dEOs will report to the Project Manager and are responsible for implementing the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners and a range of environmental coordination responsibilities. <u>Responsibilities</u> - Be fully conversant with the EMPr. - Be familiar with the recommendations and mitigation measures of this EMPr and implement these measures. - Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees and Contractor(s). - Confine the development site to the demarcated area. - Conduct environmental internal audits regarding EMPr and authorisation compliance (on). - Assist the contractors in addressing environmental challenges on site. Assist in incident management.

	- Reporting environmental incidents to the developer and ensuring corrective action is taken, and lessons learnt shared. - Assist the contractor in investigating environmental incidents and compiling investigation reports. - Follow-up on pre-warnings, defects, and non-conformance reports. - Measure and communicate environmental performance to the Contractor. - Conduct environmental awareness training on-site together with ECO and - Ensure that the necessary legal permits and/or licenses are in place and up to date. - Acting as Developer's Environmental Representative on site and working with the eCO and contractor.
Contractor	<u>Role</u> The Contractor appoints the personnel and is responsible for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are implemented as described. External contractors must ensure compliance with this EMPr while performing the onsite activities per their contract with the Project Developer. The contractors are required, where specified, to provide Method Statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development or expansion of substation infrastructure for the transmission and distribution of electricity activities. <u>Responsibilities</u> - Project delivery and quality control for the development services as per appointment. - Employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period. - Implement safe, environmentally acceptable working methods and practices. Also, ensure that equipment is properly operated and maintained to facilitate proper access and enable any operation to be carried out safely. - Attend on-site meeting(s) before activities commence to confirm the procedure and designated activity zones. - Ensure that contractors' staff repair, at their own cost, any environmental damage caused by contravention of the specifications contained in EMPr, to the satisfaction of the ECO.

contractor Environmental Officer cEO	<u>Role</u> Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent, site engineer, dedicated environmental officer, or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer, and the public. As a minimum, the eCO shall meet the following criteria: <u>Responsibilities</u> - Be on-site throughout the project and be dedicated to the project. - Ensure all their staff know the environmental requirements, conditions and constraints concerning their activities on site. - Implement the environmental conditions, guidelines and requirements stipulated in the EA, EMPr and Method Statements. - Attend the Environmental Site Meeting. - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes. - Report back formally on the completion of corrective actions. - Assist the ECO in maintaining all the site documentation. - Prepare the site inspection and corrective action reports for submission to the ECO. - Assist the ECO with preparing the monthly report and - Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint its representative.
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4 DOCUMENTATION AND REPORTING

Appropriate documentation, reporting systems, information controls, and compliance mechanisms must be in place for the implementation of the projects. As a minimum, these requirements must provide for accountability and ensure understanding in the implementation of the EMPr.

4.1 Document Control System

The holder of the EA is responsible for the upkeep and management of the Environmental file. At a minimum, all documentation detailed below will form part of the file. A hard copy of documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file may be maintained in the DSS office (where applicable). This duplicate file must remain current and up to date. The filing system must be updated, and relevant documents must be kept as required. The file must be made available upon request by the CA or other relevant authorities. The availability and completeness of the file will be checked during the environmental audits prescribed in the EIA Regulations.

4.2 Documentation to be Available

At the outset of the project, the following preliminary list of documents should be placed in the filing system and be always accessible:

- Full copy of the signed EA from the CA in terms of NEMA, approving the development or expansion;
- Copy of the generic and site-specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site-specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that an explicit reference is made to the non-compliance record;
- Complaints register.

4.3 Weekly Environmental Checklist

Depending on the scheduling of site monitoring, the ECO may complete a Weekly Environmental Checklist, the format of which is to be agreed upon before the commencement of the activity. The ECOs must sign and date the checklist, retain a copy and submit a copy of the completed checklist to the DSS after each visit.

The checklists will form the basis for the Monthly Environmental Reports. As required in the EIA regulations, copies of all completed checklists will be attached as Annexures to the Environmental Audit Report.

4.4 Environmental Site Meetings

Should environmental site meetings be held, the minutes of such meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report distributed to attendees. Each set of minutes must record "Matters for Attention" that will be reviewed at the next meeting.

4.5 Required Method Statements

The method statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is per the EMPr.

The method statement must cover applicable details about:

- development procedures;
- materials and equipment to be used;
- getting the equipment to and from the site;
- how the equipment/material will be moved while on site;
- how and where the material will be stored;
- 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;
- compliance/non-compliance with the EMPr; and
- any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following method statements to the Project Manager no less than 14 days before the commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substances;
- Vegetation management – Protection, clearing, aliens, felling;
- Access management – Roads, gates, crossings, etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (a l waste streams);
- Social interaction – complaints management, compensation claims, access to properties, etc.;
- Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation;
- Emergency preparedness – Spills, training, other environmental emergencies;
- Dust and noise management methodologies;
- Fauna interaction and risk management – only if the risk was identified – wildlife interaction, especially on game farms; and
- Heritage and palaeontology management.

The ECOs shall monitor and ensure that contractors perform according to these method statements. Completed and agreed-upon method statements between the holder of the EA and the contractor should be retained in a file.

4.6 Environmental Incident Log (Diary)

The ECO is required to maintain an up-to-date and current Environmental Incident Log (environmental diary). The Environmental Incident Log is a means to record all environmental incidents, and/or all non-compliance notices would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECOs. (For example, a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the

environmental stipulations and guidelines listed in the EMPr which, as a single event, would have a minor impact but which, if cumulative and continuous, would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and

- General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents, regardless of severity, must be reported to the Developer. The Log is to be kept in the EMPr file, and at a minimum, the following will be recorded for each environmental incident:

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

The Environmental Incident Log will be captured in the EAR.

4.7 Non-Compliance

A non-compliance notice will be issued to the responsible contractor by the ECOs via the DSS or Project Manager. The non-compliance notice will be issued in writing; a copy will be filed in the EMPr file and will, at a minimum, include the following:

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended/required corrective action; and
- Date by which the corrective action is to be completed.

The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the development site about the environment shall be recorded in a dedicated register, and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define how the environment is managed. Failure to redress the cause shall be reported to the relevant CA so it can deal with the transgression as it deems fit. The contractor is deemed not to have complied with the EMPr if, among other things, there is a deviation from the environmental conditions, impact management outcomes and impact management actions activities, as approved in generic and site-specific EMPr as relevant as set out in the EMPr, which deviation has, or may cause an environmental impact.

4.8 Corrective Action Records

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving non-compliance notice from the DSS, the contractors will ensure that the required corrective actions occur within the stipulated timeframe. On completion of the corrective action, the CEO will issue a written corrective action report to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign off on the Corrective Action Report and attach the report to the non-compliance notice in the EMPr file. Corrective action is considered

complete once the ECOs have signed off the report.

4.9 Photographic Record

A digital photographic record will be kept. The photographic record will be used to show before, during and post-rehabilitation evidence of the project and in cases of damage claims if they arise. Each image must be dated, and a brief description note must be attached. The Contractor shall allow the ECO to take photographs of all areas, activities, and actions.

The ECOs shall keep an electronic database of photographic records, which will include:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Topsoil storage areas;
5. All areas to be cordoned off during construction;
6. Waste management sites;
7. Ablution facilities;
8. Any non-conformances deemed to be “significant”;
9. All completed corrective actions for non-compliance;
10. All required signage;
11. Photographic recordings of incidents;
12. All areas before, during and post-rehabilitation; and
13. Include relevant photographs in the Final Environmental Audit Report.

4.10 Complaints Register

The ECOs shall keep a current and up-to-date complaints register. The complaints register records all complaints from communities, stakeholders, and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage; and
5. Contain a copy of the ECO written response to each complaint received and record any further correspondence with the complainant. The ECO’s written response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where the complainant issues a damage claim, the ECOs shall respond as described below.

4.11 Claims For Damages

If a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full details of the complaint as described above;
2. The DPM will evaluate the claim and associated damage and submit for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim is communicated in writing to the claimant. Should the claimant not receive this, the ECO shall, in writing, report the incident to the Developer’s negotiator and legal department; and
4. The EMPr file will record a formal record of the ECOs' response to the claimant and the rectification of the

payment method, not the amount.

4.12 Interactions with Affected Parties

Open, transparent, and good relations with affected landowners, communities, and regional staff are essential to successfully manage and mitigate environmental impacts. The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt with within an agreed timeframe;
2. Ensure that any or all agreements are documented and signed by all parties and kept in the EMP file;
3. Ensure that the complainants' telephone numbers are made available to all landowners and affected parties; and
4. Ensure that contact with affected parties is courteous at all times.

4.13 Work Stoppage

When the ECO believes a construction activity will result in environmental damage, the ECO may issue instructions to the Project Manager, who will order the Contractor to halt the activity. Penalties may be levied for non-compliance. The Contractor will keep written records of instructions from the ECO and Project Manager concerning environmental matters. Only written instructions entered into the site instruction book or written instructions issued via email, fax or hand-delivered and signed off by the Project Manager will be considered valid instructions to the Contractor. The Project Manager should attach or transfer all written instructions that were initially not included in the site instruction book to avoid later confusion or potential conflict.

4.14 Environmental Audits

Internal environmental audits of the activity and implementation of the EMP may be undertaken. The findings and outcomes are included in the EMP file.

The ECO must conduct and prepare monthly audit reports. The report will be tabled as the critical point on the agenda of the Environmental/Site Meetings. The final report will be circulated to the Project Manager and filed in the EMP file. At a frequency determined by the EA, the ECO shall submit the monthly reports to the CA. At a minimum, the monthly report is to cover the following:

- Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;
- General environmental findings and actions; and
- Any minutes of the Environmental/Site Meetings.

4.15 Final Environmental Audits

After the rehabilitation and/or EA requirements are met, a final EAR must be prepared and, if required, submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

5 IMPACT MANAGEMENT OUTCOMES AND ACTIONS

This section sets out the prescribed impact management outcomes and associated impact management actions that have been identified. The developer is responsible for ensuring the implementation of these outcomes and actions to mitigate the impact of such aspects identified for the development.

It is essential that the EMPr requirements be carefully studied, understood, implemented, and adhered to at all times. To simplify the EMPr requirements, each aspect related to the EMPr has been addressed in the table below. The period when a requirement must be implemented supports each action within the EMPr.

Each of these aspects is briefly described below for ease of reference.

- **Environmental Measures, Actions and Controls**
This section indicates the actions required to either prevent and/or minimise the potential environmental impacts associated with the project.
- **Responsibility**
This section indicates the party responsible for implementing the environmental measures and action plans laid out in the EMPr.
- **Monitoring Frequency**
This section indicates when the actions for that specific aspect must be implemented and/or monitored

5.1 PRECONSTRUCTION PHASE

5.1.1 Planning and Site Preparation

Impact management outcome: All preconstruction conditions are met and approvals obtained.

Management Actions and Controls	Responsibility	Monitoring Frequency
• An independent ECO must be appointed to monitor the contractor's compliance to the EMPr • All required approvals obtained. • This EMPr must be made binding to the Contractor, as well as sub-contractors by including it in the tender documentation. • Draw up and submit for approval an Environmental Site Management and Rehabilitation Plan, • The service systems are to be designed according to the minimum requirements of and submitted to the Local authority for approval. • Designs of foundations for individual structures must be confirmed by a qualified geologist. • Pre-construction tests for baseline readings on water quality, dust, and noise must be undertaken and reports prepared. • The environmental assessment, site walkthrough, and any additional areas identified during development will inform the identification of access-restricted areas. • Erect, demarcate and maintain a barriers with clear signage around the perimeter of any access-restricted area. Colour, and coding could be used if appropriate; • Access to the site must be determined in advance and must be within the assessed areas. • All private roads used for access must be maintained and left in at least the original condition upon completion of the works. All contractors must be made aware of all these access routes. • Maximum use of existing servitudes and roads must be made to minimise further disturbance by developing new roads. • In circumstances where private roads must be used, the condition of the said roads must be recorded before use and the condition thereof agreed by the DPM, and the contractor.	Developer/contractor	Before construction

5.1.2 Site Establishment

Impact management outcome: Impacts on the environment are minimised during site establishment, and the development footprint is kept to a demarcated development area.

Management Actions and Controls	Responsibility	Monitoring Frequency
- A method statement must be provided by the contractor before any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of critical infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management. - The location of camps must be within the approved area to ensure that the site does not impact sensitive areas identified in the environmental assessment or site walk-through. - Sites must be located where possible in previously disturbed areas. - The camp must be fenced, and gate installed; and - Use of existing accommodation for contractor staff, where possible, is encouraged. - Prior to the commencement of any construction activity on site and the arrival of construction machinery, the construction servitude and wetland and associated conservation buffer will be designated and marked properly. - Complete the search, rescue, and replanting of all protected and endangered species likely to be damaged during project development before any development or clearing. - Permits for removal must be obtained from the relevant CA before the cutting or clearing of the affected species and must be filed. - The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the replanting location complies with the conditions of approvals	Contractor	Once off

5.1.3 Fencing

Impact management outcome: Minimise impact on the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.

Management Actions and Controls	Responsibility	Monitoring Frequency
• Site demarcation and fencing with restricted access to the authorised development, where possible. • All demarcation fencing and barriers must be maintained in good working order during the development activities. • Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable. • Fenced areas with gate access must remain locked after hours, on weekends, and on holidays if staff is away from the site. Site security will always be required. • On completion of the development phase, all temporary fences are to be removed; • The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.	Contractor Developer	Ongoing

5.2 CONSTRUCTION PHASE

5.2.1 Environmental Awareness Training

Impact management outcome: All onsite staff are aware of and understand their individual responsibilities under this EMPr.

Management Actions and Controls	Responsibility	Monitoring Frequency
• All staff must receive environmental awareness training before commencement. • The Contractor must allow for sufficient sessions to train all personnel, with no more than 20 personnel attending each course. • Refresher environmental awareness training is available as needed. • All staff are aware of the conditions and controls linked to the EA and within the EMPr and are made aware of their roles and responsibilities in achieving compliance with the EA and EMPr. • The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: - Safety notifications; and - No littering.	Proponent/developer	This is to be undertaken before the start of the construction phase. once-off

- Environmental awareness training must include, as a minimum, the following: - Description of significant environmental impacts, actual or potential, related to their work; - Mitigation measures to be implemented when carrying out specific activities; - Emergency preparedness and response procedures; - Emergency procedures; - Procedures to be followed when working near or within sensitive areas; - Wastewater management procedures; - Water usage and conservation; - Solid waste management procedures; - Sanitation procedures; - Fire prevention; and - Disease prevention. - All environmental awareness training courses undertaken as part of the EMP must be recorded - Educate workers on the dangers of open and/or unattended fires. - There must be an attendance register for staff who have received environmental awareness training. - Course material must be available and presented in appropriate understandable language for all staff.	Proponent/developer	This is to be undertaken before the start of the construction phase. Once-off
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5.2.2 Vegetation Clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint.		
Management Actions and Controls	Responsibility	Monitoring Frequency
- Indigenous vegetation that does not interfere with development must be left undisturbed. - Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species: - Rivers and watercourses must be clear of fallen trees, vegetation cuttings and debris. - Only a registered pest control operator may apply herbicides on a commercial basis, and commercial application must be carried out under the supervision of a registered pest control operator, or an appropriately trained individual. - A daily register of all relevant details of herbicide usage must be kept. - No herbicides must be used in estuaries. - All protected species and sensitive vegetation must be marked and such areas fenced off where possible. Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.	Contractor ECO Developer	Duration of site clearing

5.2.3 Topsoil conservation

Impact management outcome: Proper management of topsoil for use during rehabilitation

Management Actions and Controls	Responsibility	Monitoring Frequency
- The top layer of all areas to be excavated shall be stripped and stockpiled in areas where this material will not be damaged, removed or compacted. When the stripping of topsoil takes place, the grass component shall be included in the stripped topsoil - The topsoil layer is to be stockpiled separately from the overburden. Stockpiling will only be done in designated places where it will not interfere with the natural drainage paths of the environment - No stockpiling shall be allowed below the 1:100 year flood line/within the transitional zones - Co-ordinate work to limit unnecessarily prolonged exposure of stripped areas and stockpiles. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction. - Strip and stockpile herbaceous vegetation, overlying grass and other organic matter along with topsoil. - Do not strip topsoil when it is wet. - Stockpile topsoil from different sites separately. Do not mix topsoil from different sites.	Contractor	As per the construction schedule

5.2.4 Water Supply Management

Impact management outcome: Undertake responsible water usage

Management Actions and Controls	Responsibility	Monitoring Frequency
- All abstraction points or boreholes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured daily; - The Contractor must ensure the following: - The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river; - No damage occurs to the riverbed or banks, and the abstraction of water does not entail stream diversion activities; and - Implement reasonable measures to limit pollution/sedimentation of the downstream watercourse. - Ensure water conservation is being practised by: - Minimising water use during cleaning of equipment; - Undertaking regular audits of water systems; and - This includes discussing water usage and conservation during environmental awareness training. - The use of grey water is encouraged.		

5.2.5 Storm and Wastewater Management

Impact management outcome: Impacts on the environment caused by stormwater and wastewater discharges during construction are avoided.		
Management Actions and Controls	Responsibility	Monitoring Frequency
- Runoff from the cement/concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and treated/disposed of off-site/at an approved location. - All oil spillages must be controlled using approved absorbent material, and the used absorbent material must be disposed of at an appropriate waste disposal facility. - Natural stormwater runoff not contaminated and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO. - Water contaminated with suspended solids, (soils and silt), may be released into watercourses or water bodies only once all suspended solids have been removed through settlement ponds. - Build a bund around the waste storage area to stop overflowing into storm water - Drainage channels must be constructed along access roads every 50m to divert runoff during the construction period - Natural stormwater must flow freely, either as sheet flow or in open grass swales - Energy dissipaters must be installed at all potential large flow volume areas	Contractor ECO/ESO	Ongoing

5.2.6 Solid and Hazardous Waste Management

Impact management outcome: Wastes are appropriately stored, handled, and safely disposed of at a recognised waste facility.		
Management Actions and Controls	Responsibility	Monitoring Frequency
- All waste management measures must be undertaken using an integrated waste management approach. - Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided. - A suitably positioned and demarcated waste collection site must be identified and provided. - The waste collection site must be maintained clean and orderly. - Waste must be segregated into separate marked waste type bins for recycling and safe disposal. - Staff must be trained in waste segregation. - Bins must be emptied regularly. - General waste produced onsite must be disposed of at registered waste disposal/recycling companies. - Hazardous waste must be disposed of at a registered waste disposal site. - Certificates of safe disposal for general, hazardous, and recycled waste must be maintained. - No burning or burying of waste is permitted.	Contractor SHE	Ongoing/Daily

5.2.7 Protection of Wetlands and Watercourses

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.		
Management Actions and Controls	Responsibility	Monitoring Frequency
- The demarcations will be maintained during the construction period, and no workers, construction machinery, or construction material should be moved or put outside the demarcated construction site. - The construction area must accommodate all the construction-related activities, including materials storage, access routes, soil stockpiles, etc. - Existing fences will be maintained as far as possible; however, if not possible, they will be temporarily removed and reinstated to the same or better condition to maintain the same or better level of security to the affected properties. - Where the pipelines cross or run alongside a river or stream, the existing river/stream bank structure will be maintained to reduce disturbance to the river flow. - Where the pipeline crosses stormwater channels, the crossings will be designed in a way to avoid impact on normal stormwater flow. All pipes and concrete casing will be buried at least 500 mm below natural channel level in the case of soft material and level with the natural channel in the case of hard rock material. - The movement of all machinery, workers and plant will be restricted within the alignment of the infrastructure. - The materials will only be stacked in appropriate locations. - Bedding materials will be sourced from approved sources. - Unsuitable or excess material will be disposed of in an approved disposal area. - All watercourses will be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, wash and contaminated water or organic material resulting from the Contractor's activities; - If a spill occurs, prompt action must be taken to clear the polluted or affected areas. - Where possible, no development equipment must traverse any seasonal or permanent wetland. - Existing crossing points must be favoured over the creation of new crossings (including temporary access) - Development of a permanent watercourse crossing must only be undertaken where no alternative access to the tower position is available. - There must not be any impact on the long-term morphological dynamics of watercourses. - When working in/or near a watercourse/estuary, the following environmental controls/consideration apply: - Water levels during the period of construction.		

- No altering of the bed, banks, course, or characteristics of a watercourse - During the works' execution, appropriate measures must be implemented to prevent pollution and contamination of the riparian environment, e.g., maintaining construction equipment. - Where earthwork is being undertaken near any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel and - Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows. • It is recommended that the Jukskei River and UCVB wetland and 1:100 year flood line and associated GDARD (2013) setback areas as well as construction and operation buffer zones be demarcated as “no-go areas” from the proposed residential development as this will greatly reduce the significance of impacts which may occur on the watercourses; • All manholes that form part of the sewage pipelines are to be raised above the 1:100 year floodline of the Jukskei River and UCVB wetland; • Areas which are to be cleared of vegetation, including contractor laydown areas, must remain as small as possible, particularly in the study area of the proposed residential development in order to reduce the risk of proliferation of alien vegetation, and in order to retain a level of protection to the watercourses during construction (e.g. sediment trapping, slowing of stormwater runoff etc.). Contractor laydown areas are to remain outside of the delineated watercourses and their associated buffers, and as much as feasible no natural/indigenous hydrophytic vegetation is to be cleared; • The use of Sustainable Drainage Systems (SUDs) to manage stormwater is considered critical if roads and large paved parking areas are to be planned adjacent to the Jukskei River and UCVB wetland, in order to prevent significant impacts on the hydrological functioning of the watercourses and reduce the risk of flooding and erosion during high flow periods. Furthermore, any discharge of stormwater runoff into the Jukskei River must be done in such a way as to prevent erosion. In this regard, it is highly recommended that a suitably qualified engineer be consulted with regards to the use of SUDs. Examples of these which may be applicable to this development include permeable paving, rainwater harvesting, soakaways, bioswales and bio-retention facilities or attenuation ponds to ensure that post-development runoff does not exceed pre-development runoff volumes and lead to altered flood peaks which may exceed the capacity of the Jukskei River;		
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- Following completion of construction, reprofiling of disturbed areas must take place, and must be revegetated with indigenous graminoid species. The species composition to be utilised in re-seeding must be determined by a suitably qualified botanist in consultation with a suitably qualified freshwater ecologist (if the watercourse areas are encroached upon); - It must be ensured that all recruited alien vegetation present as a result of disturbances caused by construction activities is eradicated, and that ongoing alien vegetation control is implemented. It is highly recommended that an alien vegetation management plan be compiled during the planning phase and implemented concurrently with the commencement of construction. Small scale rehabilitation is also recommended to be conducted subsequent to the proposed residential development within the study area.		
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5.2.8 Protection of Fauna and Flora

Impact management outcome: Disturbance to fauna is minimised.		
Management Actions and Controls	Responsibility	Monitoring Frequency
- The breeding sites of raptors and other wild bird species must be considered while planning the development program. - Breeding sites must be kept intact, and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledglings are present. - Special recommendations of the avian specialist must be constantly adhered to prevent unnecessary disturbance of birds. - No poaching must be tolerated under any circumstances. All animal dens near the work areas must be marked as access-restricted areas. - No deliberate killing of fauna is allowed. - No Threatened or Protected Species (ToPs) and/or protected fauna as listed according to NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits. - No unauthorised access, land clearing, construction activities, vehicular traffic of any kind, pedestrian traffic or fires will be permitted outside of specific construction areas or in sensitive areas - No clearing of vegetation will be allowed within any wetland/ natural drainage areas other than as indicated by the ECO - All invader or exotic plant species must be removed and disposed of at a landfill site	Contractor ECO,	Ongoing

• Wood harvesting of any trees or shrubs inside the protected area or adjacent areas for firewood shall be prohibited and subject to a fine • Floral assets and tree clumps shall be identified and retained where possible • No street trees planted by the municipality may be removed without prior approval by the relevant department. • No indigenous trees or floral assets may be removed without permission from the specialist or in some cases a flora removal permit may be required • No trees, hedges or other large vegetation types may be planted along or over service pipelines/ areas		
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5.2.9 Protection of Heritage Resources

Impact management outcome: Impact on heritage resources is minimised.		
Management Actions and Controls	Responsibility	Monitoring Frequency
• Identify, demarcate, and prevent impact to all known sensitive heritage features on-site per the No-Go procedure. • Carry out general monitoring of excavations for potential fossils, artefacts, and materials of heritage importance. • All work must cease immediately if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/palaeontologist (or the South African Police Services) so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.	Contractor ECO Site Supervisor	Monitored Daily and ongoing

5.2.10 Safety

Impact management outcome: All precautions are taken to minimise the risk of injury, harm, or complaints.		
Management Actions and Controls	Responsibility	Monitoring Frequency
- The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (85 of 1993) and the National Building Regulations. - No informal settlement allowed on site or in the adjacent roads leading to the construction site. - The contractor shall manage any informal traders on or adjacent to the site. - All dangerous areas and deep excavations should be barrier taped. - The handling of equipment and materials to be supervised. - Clear sign boards should be erected at the site entrance. - Fire extinguishers should be accessible, and personnel trained on their use. - A list with all the relevant emergency telephone numbers shall be pasted up in the site office. - Identify fire hazards, demarcate and restrict public access to these areas, and notify the local authority of potential threats, such as large brush stockpiles and fuels. - Adequate protective measures must be implemented to prevent unauthorised access to site and scaffolding. - Ensure structures vulnerable to high winds are secured. - Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged. - The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (85 of 1993) and the National Building Regulations - No informal settlement allowed on site or in the adjacent roads leading to the construction site - The contractor shall manage any informal traders on site - All dangerous areas and deep excavations should be barrier taped - The handling of equipment and materials to be supervised - Clear sign boards should be erected at the site entrance - Fire extinguishers should be accessible, and personnel trained on their use - A list with all the relevant emergency telephone numbers shall be pasted up in the site office		

5.2.11 Security

Impact management outcome: All precautions are taken to minimise the risk of theft, loss of equipment and uncontrolled access

Management Actions and Controls	Responsibility	Monitoring Frequency
- Security officers will remain on site for the purpose of guarding the equipment. - Access control must be enforced all times. - Fencing is required to demarcate the boundaries of the construction site and work camp. - No casual access to the work camp and the construction site will be allowed - Effects of the erection of temporary fences must be rehabilitated after construction is complete. - Ensure structures vulnerable to high winds are secured. - Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	Contractor SHE	During construction

5.2.12 Sanitation

Impact management outcome: Clean and well-maintained toilet facilities available to all staff to minimise the risk of disease and impact on environment.

Management Actions and Controls	Responsibility	Monitoring Frequency
- Mobile chemical toilets are installed on-site if no other ablution facilities are available. - The ablution facilities and/or mobile toilets must be consistently used, and no indiscriminate use of the veld for ablutions must be permitted under any circumstances. - Where mobile chemical toilets are required, the following must be ensured: - Toilets are no closer than 100m to any watercourse or body. - Toilets are secured to the ground to prevent them from toppling due to wind - No spillage occurs when the toilets are cleaned or emptied, and the contents are managed per the EMPr. - Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out. - Toilets are emptied before long weekends and workers' holidays, and must be locked after working hours. - Toilets are serviced regularly, and the ECO must inspect toilets to ensure compliance with health standards.	Contractor	Monthly, throughout the construction phase

5.2.13 Hazardous Substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.		
Management Actions and Controls	Responsibility	Monitoring Frequency
- The use and storage of hazardous substances are minimised, and non-hazardous and non-toxic alternatives are substituted where possible. - All hazardous substances must be stored in suitable containers as defined in the Method Statement. - Containers must be marked to indicate contents, quantities, and safety requirements. - All storage areas must be bunded. The bunded area must be sufficient to contain a spill/leak from the stored containers. - Bunded areas to be suitably lined with a SABS-approved liner. - An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be updated continuously. - All hazardous chemicals used on site must have Material Safety Data Sheets (MSDS). - All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet. - Employees handling hazardous substances/materials must know the potential impacts and follow appropriate safety measures. Proper personal protective equipment must be made available. - The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid are stored in appropriate storage tanks or bowers. - The tanks/bowers must be on a smooth, impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund, and the volume inside the bund must be 130% of the total capacity of all the storage tanks/bowers (110% statutory requirement plus an allowance for rainfall). The bund floor must be sloped, draining to an oil separator. - Provision must be made for refueling at the storage area by protecting the soil with impermeable ground cover. Where dispensing equipment is used, a drip tray must be used to contain spills. - All empty, externally dirty drums must be stored on a drip tray or within a bunded area. - No unauthorised access into the hazardous substance's storage areas must be permitted. - No smoking must be allowed near the hazardous storage areas. - Adequate fire-fighting equipment must be made available at all hazardous storage areas. - Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection, such as drip trays, must be used.	Contractor	Monitored daily and ongoing

• An appropriately sized spill kit kept onsite, relevant to the scale of the activity involving the use of hazardous substances, must always be available. • The responsible operator must have the required training to use the spill kit in emergencies. • An appropriate number of spill kits must be available in all areas where activities are undertaken. • In the event of a spill, contaminated soil must be collected in containers stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008.		
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5.2.14 Workshop, Equipment Maintenance and Storage

Impact management outcome: Soil, surface water and groundwater contamination are minimised.		
Management Actions and Controls	Responsibility	Monitoring Frequency
• Where possible and practical, vehicle and equipment maintenance must occur in the workshop area or specifically prepared area. • During servicing vehicles or equipment, mainly where emergency repairs are affected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must know about a fire as soon as it starts. • Leaking equipment must be repaired immediately or be removed from the site to facilitate repair. • Workshop areas must be monitored for oil and fuel spills. • An appropriately sized spill kit kept onsite relevant to the activity's scale, must be available. • The workshop area must have a bunded concrete slab sloped to facilitate runoff into a collection sump or suitable oil/water separator where maintenance work on vehicles and equipment can be performed. • Water drainage from the workshop must be contained and managed.	Contractor	Ongoing

5.2.15 Batching Plants

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.

Management Actions and Controls	Responsibility	Monitoring Frequency
- Concrete mixing must be carried out on an impermeable surface. - Batching plant areas must have a containment facility to collect cement-laden water. - Dirty water from the batching plant must be contained to prevent soil and groundwater contamination. - Bagged cement must be stored in an appropriate facility and at least 10m from water courses, gullies and drains. - A washout facility must be provided for the washing of concrete-associated equipment. Water used for washing must be restricted. - Hardened concrete from the washout facility or concrete mixer can be reused or disposed of at an appropriate licensed disposal facility. - Empty cement bags must be secured with adequate binding material if they will be temporarily stored on site. - Sand and cement aggregates must be kept damp to prevent dust generation. - Temporary fencing and containment walls must be erected around batching plants - Any excess sand, stone and cement must be removed or reused from the site on completion of the construction period and disposed of at a registered disposal facility.	Contractor	Monitored daily and ongoing

5.2.16 Dust Emissions

Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.

Management Actions and Controls	Responsibility	Monitoring Frequency
- Measures implemented to minimise dust generation due to project development activities. - Removal of vegetation must be avoided until soil stripping is required, and similarly exposed surfaces must be re-vegetated or stabilised as soon as possible. - Excavation, handling, and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present. - During high wind conditions, the ECO must evaluate the situation and recommend whether dust-damping measures are adequate or whether working will cease until the wind speed drops to an acceptable level. - Where possible, soil stockpiles must be in sheltered areas where they are not exposed to the erosive effects of the wind. - Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO. - Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas. - Straw stabilisation must be applied at one bale/10m² and harrowed into the top 100 mm of top material for all completed earthworks. - For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.	Contractor	Daily

5.2.17 Blasting

Impact management outcome: Impact on the environment is minimised through a safe blasting practice

Management Actions and Controls	Responsibility	Monitoring Frequency
- A suitably licensed blasting contractor must conduct any blasting activity. - Where required, approval must be obtained from authorities in advance, and - Notify surrounding landowners and emergency services site personnel of blasting activity 24 hours before such activity takes place on the Site.	Contractor	Ongoing

5.2.18 Noise

Impact Management Outcome: Prevent excessive noise by implementing mitigation measures

Management Actions and Controls	Responsibility	Monitoring Frequency
- The Contractor must keep the noise level within acceptable limits. Restrict the use of sound amplification equipment for communication and emergency only. - All vehicles and machinery must be fitted with appropriate silencing technology and maintained. - The contractor must record and communicate any complaints it receives regarding noise. Where possible or applicable, transport construction workers to and from the site daily. - Develop a Code of Conduct regarding the behaviour of construction staff. - Operating hours, as determined by the environmental authorisation, are adhered to. Where not defined, ensure that activities meet the impact management outcome related to noise management.	Contractor	Daily

5.2.19 Stockpiling and Stockpile Areas

Impact management outcome: Erosion and sedimentation because of stockpiling are reduced.

Management Actions and Controls	Responsibility	Monitoring Frequency
- All excavated material must be stored appropriately on-site to minimise impacts to water bodies. - All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth - Topsoil stockpiles must not exceed 2 m in height. - During windy and heavy rain periods, stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin). - Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material to prevent erosion.	Developer Contractor	Ongoing

5.2.20 Erosion control

Impact management outcome: Minimise erosion due to surface water and leading to loss of soil and sedimentation of wetlands		
Management Actions and Controls	Responsibility	Monitoring Frequency
• Avoid over-wetting, saturation and unnecessary runoff during dust control activities and irrigation. • Do not drain, fill or alter in any way, any wetland or drainage line, including the riverbanks unless this forms part of the construction Works, or upon specific instruction by the EO / ECO. • Do not allow surface water or storm water to be concentrated, or to flow down cut or fill slopes or along pipeline routes without erosion protection measures being in place. • Line overflow and scour channels with stone pitching along their length and at their points of discharge to prevent soil erosion. • Ensure that channels do not discharge straight down the contours. These must be aligned at such an angle to the contours that they have the least possible gradient. • Ensure that overland discharge occurs over areas that have a minimum cover of 90% grass cover at a minimum height of 150mm. This applies to areas downslope of the discharge point as well. • Where possible, undertake river diversions outside of the rainy season. • For long-term construction sites, accommodate 1:10 year floods in all temporary infrastructure (i.e. drifts, diversions, etc.). • Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and Work Areas. • Retain natural trees, shrubbery and grass species wherever possible. • Vehicular or pedestrian access to natural areas beyond the demarcated boundary of the Work Area is not permitted. Utilise only light equipment for access and deliveries into areas of unstable soils, in areas where erosion is evident, and at stream and river embankments. • Institute adequate sedimentation control measures at river crossings and when excavation or disturbance within riverbanks, or the riverbed takes place. • Address erosion donga crossings as river crossings, applying soil erosion control and bank stabilisation procedures as specified by the EO / ECO. • Do not allow erosion to develop on a large scale before effecting repairs. When in doubt, seek advice from the EO / ECO. Repair all erosion damage as soon as possible. • In general, steep slopes or slopes where the soils are by nature dispersive or sandy, must be stabilised.	Developer Contractor	Ongoing

5.2.21 Civil Works

Impact management outcome: Impact on the environment minimised during civil works.

Management Actions and Controls	Responsibility	Monitoring Frequency
- Where terracing is required, topsoil must be collected and retained for reuse to rehabilitate disturbed areas not covered by yard stone. - Areas to be rehabilitated include terrace embankments and areas outside the high-voltage yards. - All sloped areas must be stabilised to ensure proper rehabilitation is affected and erosion is controlled. - These areas can be stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented. - Rehabilitation of the disturbed areas must be managed under: Landscaping and Rehabilitation. - All excess spoil generated must be disposed of appropriately and at a recognised landfill site and - Spoil can, however, be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes.	Developer Contractor	Ongoing

5.2.22 Excavations and Trenching and Drainage Systems

Impact management outcome: No environmental degradation occurs due to the excavation or installation of foundations.

Management Actions and Controls	Responsibility	Monitoring Frequency
- All excess spoil generated during foundation excavation must be disposed of appropriately and at a recognised disposal site if not used for backfilling purposes. - Spoil can, however, be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes. - Management of equipment for excavation purposes must be undertaken, and - Hazardous substance spills from equipment must be managed	Developer Contractor	Ongoing

5.2.23 Services

Impact management outcome: No environmental degradation occurs due to the excavation or installation of foundations.

Management Actions and Controls	Responsibility	Monitoring Frequency
- If any disruption in services is foreseen adjacent land owners must be informed at least 4 days prior - Spoil can, however, be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes. - Management of equipment for excavation purposes must be undertaken and - Hazardous substance spills from equipment must be managed	Developer Contractor	Ongoing

5.2.24 Community Relations

Impact management outcome: Cordial and beneficial relations are maintained with the community.

Management Actions and Controls	Responsibility	Monitoring Frequency
- Develop and implement communication strategies to facilitate public participation. - Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process. - Sustain continuous communication and liaison with neighbouring owners and residents - Create work and training opportunities for local stakeholders; and - Where feasible, no workers, except security personnel, must be permitted to stay overnight on the site. This would reduce the risk to local farmers	Developer ECO	Ongoing

5.2.25 Temporary Closure of Site

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.

Management Actions and Controls	Responsibility	Monitoring Frequency
- Bunds must be emptied (where applicable) and undertaken following the impact management actions - Hazardous storage areas must be well-ventilated. - Fire extinguishers must be serviced and accessible. Service records are to be filed and audited at the last service. - Emergency and contact - Night hazards such as reflectors, lighting, traffic signage, etc. must have been checked. - Fire hazards identified, and the local authority must have been notified of potential threats, e.g. large brush stockpiles, fuels, etc. - Structures vulnerable to high winds must be secured. - Wind and dust mitigation must be implemented. - Cement and materials stores must have been secured. - Toilets must have been emptied and secured. - Refuse bins must have been emptied and secured. - Drip trays must have been emptied and secured.	Contractor	Ongoing

5.2.26 Fire Prevention

Impact management outcome: Prevention of the risk of uncontrollable fires

Management Actions and Controls	Responsibility	Monitoring Frequency
• Designate smoking areas where the fire hazard could be regarded as insignificant. • Firefighting equipment must be available on all vehicles located on site. • The local Fire Protection Agency (FPA) must be informed of construction activities. • Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site.	Contractor	Ongoing

5.2.27 Emergency Procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.

Management Actions and Controls	Responsibility	Monitoring Frequency
• Compile an Emergency Response Action Plan (ERAP) before the commencement of the project. • The Emergency Plan must deal with accidents, potential spillages and fires on site. • All staff must be aware of emergency procedures as part of environmental awareness training. • The relevant local authority must know about a fire as soon as it starts. • In an emergency, mitigation measures must be implemented to contain the spill or leak.	Contractor	Monitored daily and ongoing

5.3 REHABILITATION AND LANDSCAPING PHASE

5.3.1 Removal and disposal of waste or safekeep of material

Impact management outcome: Cleaning the site to ensure no remnants of construction are a nuisance.

Management Actions and Controls	Responsibility	Monitoring Frequency
- Remove from site all construction plant, equipment, storage containers, temporary fencing, temporary services, fixtures and any other temporary Works. - Clear the site of all inert waste and rubble, including surplus rock, foundations, and batching plant aggregates. - Remove temporary fuel stores, hazardous substance stores, and pollution control sumps from the site. Dispose of hazardous waste in the approved manner. - Remove all pollution containment structures and materials not used again as hazardous waste. - Dismantle and flatten temporary drifts and river crossings, reinstating all drainage lines to approximate their original profile. - Remove temporary sanitary infrastructure and wastewater disposal systems	Contractor	Once-off after construction

5.3.2 Shaping and backfilling

Impact management outcome: To ensure that the site is safe and that topsoil is used for revegetation

Management Actions and Controls	Responsibility	Monitoring Frequency
- Backfill all excavations, and test pits with insitu material. Make all dangerous excavations safe by backfilling. - No slopes steeper than 1(V):3(H) are permitted unless specified by the engineer. - Backfill drains, and evaporation dams and compact, covering with a final layer of topsoil to a height of 100mm above the surrounding ground surface. - Monitor backfilled areas for subsidence and fill depressions using available material. - Shape all disturbed areas to blend in with the surrounding landscape. - Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass, and other fine organic matter in all disturbed areas of the construction site. - Place topsoil in the same area from which it was stripped. - Do not use topsoil suspected to be contaminated with the seed of alien vegetation. - Shape and mound topsoil to 200mm from the top of manholes and valve chambers, which protrude above ground and over pipelines to facilitate subsequent consolidation of the backfill.	Contractor	Weekly during the rehabilitation phase

5.3.3 Revegetation and landscaping

Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.

Management Actions and Controls	Responsibility	Monitoring Frequency
• Rehabilitation/landscaping is to be done immediately after completion of works • Rip or scarify all areas following the application of topsoil to facilitate mixing of the upper most layers. • Rip and/or scarify all disturbed areas of the construction site, including temporary access routes and roads, compacted during the execution of the Works. • Stored topsoil and reseeding must be used to rehabilitate all open soil areas following construction activities • Re-vegetation must match the vegetation type which previously existed Grassing must be done by a qualified contractor using appropriate equipment. • Seeding should be done during the summer when the germination rate is better. • Hydroseeding with a winter mix is only specified when regrassing is urgent. • The use of indigenous vegetation should be optimized during the landscaping		

6 CONCLUSION

Although this document contains all foreseeable and potential mitigations or management actions, the EMPr should be seen as a live, day-to-day management document. If continuously reviewed and managed correctly, the EMPr will result in the successful construction and operation of the proposed development.

All attempts should be made to include this EMPr in any contractual documentation so that the contractors know the requirements and timing implications to fulfil all provisions.

Further guidance should also be taken on any conditions in the Environmental Authorisation if the project is approved as the EA conditions are an integral part of the final EMPr.

