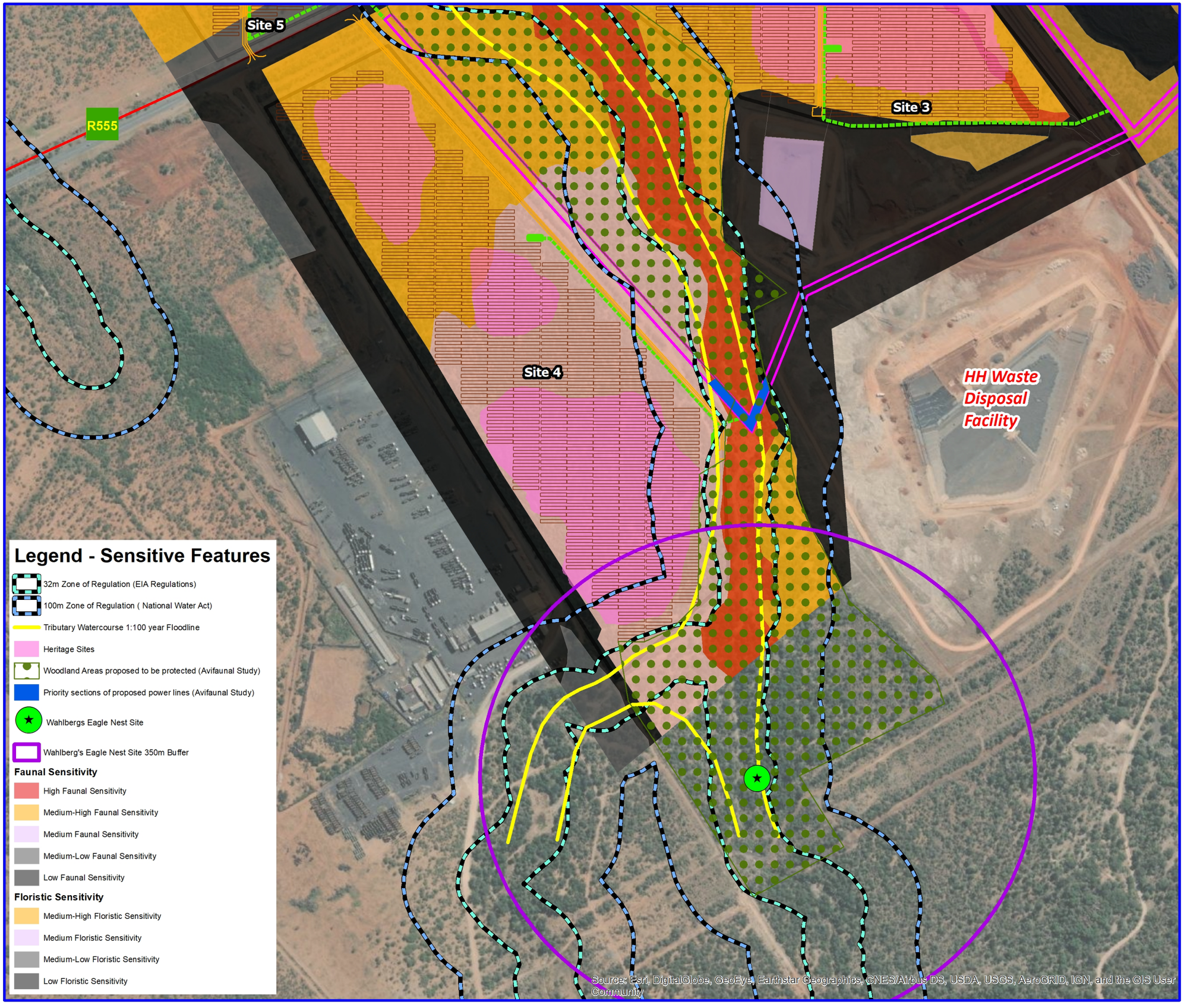
EIA for the proposed 100MWp Photovoltaic Plant at the Tubatse Ferrochrome Smelter, Steelpoort

ENVIRONMENTAL SENSITIVITIES - SITE 4



N

Legend

- Proposed Development Sites
- Proposed Power Line Corridors
- Proposed Box Transformers and Inverters
- Proposed Site Access Roads
- Proposed Underground Cables

Roads

Class

- Provincial
- Secondary tar

Legend - Sensitive Features

- 32m Zone of Regulation (EIA Regulations)
- 100m Zone of Regulation (National Water Act)
- Tributary Watercourse 1:100 year Floodline
- Heritage Sites
- Woodland Areas proposed to be protected (Avifaunal Study)
- Priority sections of proposed power lines (Avifaunal Study)
- Wahlbergs Eagle Nest Site
- Wahlberg's Eagle Nest Site 350m Buffer

Faunal Sensitivity

- High Faunal Sensitivity
- Medium-High Faunal Sensitivity
- Medium Faunal Sensitivity
- Medium-Low Faunal Sensitivity
- Low Faunal Sensitivity

Floristic Sensitivity

- Medium-High Floristic Sensitivity
- Medium Floristic Sensitivity
- Medium-Low Floristic Sensitivity
- Low Floristic Sensitivity

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Scale 1:5,000

0 100 200 400 m

Date: 20 October 2021
Created by: Paul da Cruz
RHDHV Ref: MD5462

Coordinate System: Custom
Datum: WGS 1984
Units: Degree

Data Sources:
ESRI
MDB
DTI

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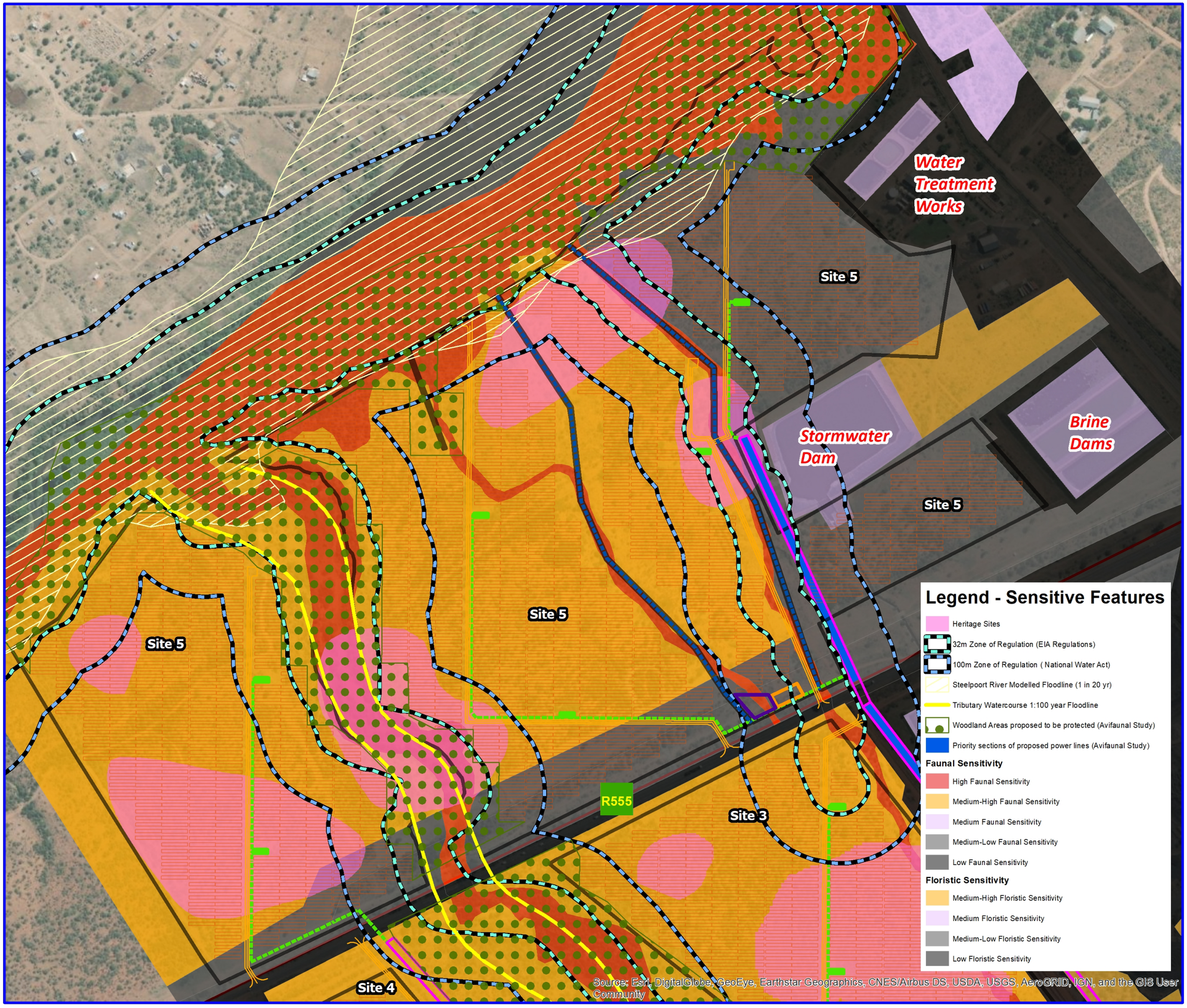
EIA for the proposed 100MWp Photovoltaic Plant at the Tubatse Ferrochrome Smelter, Steelpoort

ENVIRONMENTAL SENSITIVITIES - SITE 5



N

Legend

- Proposed Development Sites
- Proposed Power Line Corridors
- Proposed Box Transformers and Inverters
- Proposed Site Access Roads
- Proposed Storage Yard
- Proposed Site Office
- Proposed Underground Cables
- Proposed Culverted Watercourses

Roads

Class

- Provincial
- Secondary tar

Scale 1:5,000

0 100 200 400 m

Date: 20 October 2021
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Appendix H:
Generic EMPr - Powerline

REPORT

Generic Environmental Management Programme for the 33kV Overhead Powerlines - 100MWp Photovoltaic Plant associated with the Tubatse Ferrochrome (TFC) Smelter, Fetakgomo Tubatse Local Municipality Ref 14/12/16/3/3/2/2079

Generic EMPr for 33kV Overhead Powerlines

Client: Samancor Chrome Pty Ltd

Reference: MD5462-RHD-ZZ-XX-RP-Z-0001

Status: S0/P01.01

Date: 29 October 2021

Royal HaskoningDHV

Enhancing Society Together

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Document title:	Generic Environmental Management Programme for the 33kV Overhead Powerlines - 100MWp Photovoltaic Plant associated with the Tubatse Ferrochrome (TFC) Smelter, Fetakgomo Tubatse Local Municipality Ref 14/12/16/3/3/2/2079
Document short title:	
Reference:	MD5462-RHD-ZZ-XX-RP-Z-0001
Status:	P01.01/S0
Date:	29 October 2021
Project name:	The Development of a 100MWp Photovoltaic Plant associated with the Tubatse
Project number:	MD5462
Author(s):	Seshni Govender

Drafted by:	Seshni Govender & Prashika Reddy
Checked by:	Prashika Reddy
Date:	21-10-2021
Approved by:	Prashika Reddy
Date:	21-10-2021

Classification
Project related

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Table of Contents

Table of Tables

Table of Figures

PART A – GENERAL INFORMATION

1 DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA has that meaning, and 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 key 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 - The 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 Substances 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/ ECO/ Engineer in response to this EMPr. The Method Statement must set out the equipment, materials, labour, and method(s) the Contractor proposes using 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 is in accordance with this specification and/or will produce results in accordance with this specification;

The Method Statement shall cover applicable details with regard to:

(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 (or action to be taken if containment is not possible) 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 means all solid waste, including 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 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility, and composition of the soil;

Works means the Works to be executed in terms of the Contract.

2 ACRONYMS AND ABBREVIATIONS

CA	Competent Authority
cEO	Contractors Environmental Officer
DFFE	Department of Forestry, Fisheries and the Environment
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
MSDS	Material Safety Data Sheet
NCDAERL	Northern Cape Department for Agriculture, Environmental Affairs, Rural Development and Land Reform
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)
RI&AP's	Registered Interested and affected parties

This EMPr is based on the generic Environmental Management Programme for substation infrastructure for electricity transmission and distribution (Government Gazette No 42323, 22 March 2019), contemplated in Regulations 19(4), 23(4), and Appendix 4 to the Environmental Impact Assessment Regulations, 2014, as amended.

3 ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities, and reporting lines within an institutional framework. Therefore, this section of the generic EMPr gives guidance to the various environmental roles and reporting lines.

Table 1: Guide to roles and responsibilities for implementation of a generic EMPr

Function	Role and Responsibilities
Developer's Project Manager (DPM)	Role The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Furthermore, 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 the mandate to enable the ECO to perform responsibilities. He must ensure that the ECO is integrated as part of the project team while remaining independent. Responsibilities ▪ 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 of site instructions to the Contractor for corrective actions required; ▪ Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. ▪ Overall management of the project and EMPr implementation; and ▪ Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	Role The DSS reports directly to the DPM, oversees site works, 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. Responsibilities ▪ Ensure that all Contractors identify a contractor's Environmental Officer (cEO); ▪ Must be fully conversant with the conditions of the EA. ▪ Oversees site works, liaison with Contractor, DPM, and ECO; ▪ Must ensure that all landowners have the relevant contact details of the site staff, ECO, and cEO; ▪ Issuing of site instructions to the Contractor for corrective actions required; ▪ Will issue all non-compliances to contractors; and ▪ Ratify the Monthly Environmental Report.

Function	Role and Responsibilities
Environmental Control Officer (ECO)	Role The ECO should have appropriate training and experience in the implementation of 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 and 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 regarding all environmental matters. The Contractor, contractor Environmental Officer (cEO), and developer Environmental Officer (dEO) are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications set out in the EA and EMPr. The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &Affected Parties' (RI&AP's), as required. 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 that have a cost implication (i.e., those deemed to be a variation not allowed for in the Performance Specification) must be endorsed by the Project Manager. As specified by the EA, the ECO must report to the relevant CA as and when required. Responsibilities The responsibilities of the ECO will include the following: ▪ Be familiar with the recommendations and mitigation measures of this EMPr; ▪ Be conversant with relevant environmental legislation, policies, and procedures, and ensure compliance with them; ▪ 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 contained 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; ▪ Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements; ▪ In consultation with the Developer Site Supervisor, order the removal of person(s) and/ or equipment which are in contravention of the specifications of the EMPr and/ or environmental licenses; ▪ 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 as well as 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.) as well as corrective and preventive actions taken; ▪ Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken;

Function	Role and Responsibilities
	▪ 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 training programmes of the Contractor; ▪ 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; ▪ Communication of all modifications to the EMPr to the relevant stakeholders.
developer Environmental Officer (dEO)	Role The dEO will report to the Project Manager and are responsible for the implementation of 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. Responsibilities ▪ 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, Contractor(s); ▪ Confine the development site to the demarcated area; ▪ Conduct internal environmental audits with regards to EMPr and authorisation compliance (on cEO); ▪ Assist the contractors in addressing environmental challenges on-site; ▪ Assist in incident management: ▪ Reporting environmental incidents to the developer and ensuring that corrective action is taken and lessons learned shared; ▪ Assist the Contractor in investigating environmental incidents and compile investigation reports; ▪ Follow-up on pre-warnings, defects, non-conformance reports; ▪ Measure and communicate environmental performance to the Contractor; ▪ Conduct environmental awareness training on-site together with ECO and cEO; ▪ 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 work together with the ECO and Contractor.
Contractor	Role The Contractor appoints the cEO and has overall responsibility 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 on-site activities per their contract with the Project Developer. In addition, 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 for overhead electricity transmission and distribution infrastructure activities.

Function	Role and Responsibilities
	Responsibilities ▪ Project delivery and quality control for the construction 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; ▪ Ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is operated correctly and maintained to facilitate proper access and enable any operation to be carried out safely; ▪ Attend on-site meeting(s) prior to the commencement of construction activities to confirm the construction procedure and designated activity zones; ▪ Ensure that Contractors' staff (or sub-contractors) repair, at their own cost, any environmental damage resulting from a contravention of the specifications contained in the EMPr to the satisfaction of the ECO.
contractor Environmental Officer (cEO)	Role Each Contractor affected by the EMPr should appoint a cEO 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; a 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 cEO shall meet the following criteria: Responsibilities ▪ Be on-site throughout the project and be dedicated to the project; ▪ Ensure all their staff are aware of the environmental requirements, conditions, and constraints concerning all of their activities on-site; ▪ Implementing the environmental conditions, guidelines, and requirements as stipulated within 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 reports and corrective action reports for submission to the ECO; ▪ Assist the ECO with the preparing of the monthly report; and ▪ Where more than one Contractor is undertaking work on-site, each company appointed as a Contractor will appoint a cEO representing that company.

4 ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the generic EMPr, a number of reporting systems, documentation controls, and compliance mechanisms must be in place for all overhead transmission and distribution electricity infrastructure projects as a minimum requirement.

4.1 Document Control/ Filing System

The holder of the EA is solely responsible for the upkeep and management of the generic EMPr file. At a minimum, all documentation detailed below will be stored in the generic EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the Developer's Site Supervisor (where applicable). This duplicate file will be the responsibility of the ECOs and must remain current and up to date. The filing system must be updated, and relevant documents added as required. The generic EMPr file must always be made available on request by the CA (in terms of NEMA EIA regulation) or other relevant authorities. In addition, the generic EMPr file will form part of any environmental audits undertaken as prescribed in the Regulations.

4.2 Documentation to be Available

At the outset of the project, the following documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development;
- 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 a clear reference is made to the non-compliance record; and
- Complaints register.

4.3 Weekly Environmental Checklist

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed upon prior to commencement of the activity. The ECOs must sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS weekly.

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

4.4 Environmental Site Meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and be attached to the Monthly Report distributed to attendees. In addition, each set of minutes must clearly record “Matters for Attention” that will be reviewed at the next meeting.

4.5 Required Method Statements

The method statement will be made in such detail that the ECOs are enabled to assess whether the Contractor's proposal is in accordance with the EMPr.

The Method Statement shall cover applicable details with regard to:

- 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 generic 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 prior to the programmed commencement date of the subject works or 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 – Protected, clearing, aliens, felling;
- Access management – roads, gates, crossings, etc.;
- Fire plan;
- Waste management transport, storage, segregation, classification, disposal (all 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 the Contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

4.6 Environmental Incident Log (Diary)

The ECOs are 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 notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this generic 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 generic 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 generic 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 Developer's Site Supervisor or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the generic 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 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 pertaining to 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 to deal with the transgression as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, there are deviations from the environmental conditions, impact management outcomes, and impact management actions activities, as approved in generic and site-specific 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 a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions must occur within the stipulated timeframe. Upon completing the corrective action, the cEO will issue a Corrective Action Report in writing 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 cases of damages claims if they arise. Each image must be dated, and a brief description note attached.

The Contractor shall:

- Allow the ECOs access to take photographs of all areas, activities, and actions.

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

- Pictures of all areas designated as work areas, camp areas, development sites, and storage areas taken before these areas are set up;
- All bunding and fencing;
- Road conditions and road verges;
- Condition of all farm fences;
- Topsoil storage areas;
- All areas to be cordoned off during construction;
- Waste management sites;
- Ablution facilities (inside and out);
- Any non-conformances deemed to be "significant";
- All completed corrective actions for non-compliance;
- All required signage;
- Photographic recordings of incidents;
- All areas before, during, and post-rehabilitation; and
- 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 is to record all complaints received from communities, stakeholders, and individuals. The Complaints Record shall:

- Record the name and contact details of the complainant;
- Record the time and date of the complaint;
- Contain a detailed description of the complaint;
- Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
- Contain a copy of the ECOs 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. In addition, where a complainant issued a damage claim, the ECOs shall respond as described in ***Section 4.11*** below.

4.11 Claims for Damages

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

- Record the full detail of the complaint as described in ***Section 4.10*** above;
- The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
- Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing, report the incident to the Developer's negotiator and legal department; and
- A formal record of the response by the ECOs to the claimant and the rectification of the method of making payments not amount will be recorded in the EMPr file.

4.12 Interactions with Affected Parties

Open, transparent, and good relations with affected landowners, communities, and regional staff are essential aspects of successful management and mitigation of environmental impacts.

The ECOs shall:

- Ensure that all queries, complaints, and claims are dealt with in an agreed timeframe;
- Ensure that any or all agreements are documented, signed by all parties, and a record of the agreement kept in the EMPr file;
- Ensure that a complaints telephone number is made available to all landowners and affected parties; and
- Ensure that contact with affected parties is courteous at all times.

4.13 Environmental Audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes are included in the EMPr file and submitted to the CA at intervals as indicated in the EA.

The ECOs must prepare a monthly EAR. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting, and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the CA. At a minimum, the monthly report is to cover the following:

- Weekly 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
- Minutes of the Bi-monthly Environmental Site Meetings.

4.14 Final Environmental Audits

On completion of the rehabilitation and/ or requirements of the EA, a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

PART B: SECTION 1

5 IMPACT MANAGEMENT OUTCOMES AND ACTION

This section provides a pre-approved generic EMPr template with aspects common to the development of overhead electricity transmission and distribution infrastructure. A list of aspects identified for the development or expansion of overhead electricity transmission and distribution infrastructure. A set of prescribed impact management outcomes and associated impact management actions have been identified for each aspect. Holders of EAs are responsible for ensuring the implementation of these outcomes and actions for all projects as a minimum requirement to mitigate the impact of such aspects identified to develop or expand overhead electricity transmission and distribution infrastructure.

The template provided below is completed by providing the information under each heading for each environmental impact management action. The items listed below that are not applicable to this project are mark as not applicable and will not form part of the impact management actions. The completed template must be signed and dated on each page by both the Contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the Contactor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

5.1 Environmental Awareness Training

Management Outcome: All on-site staff are aware and understand the individual responsibilities in terms of this EMPr.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All staff must receive environmental awareness training; ▪ The Contractor must allow for sufficient sessions to train all personnel (with no more than 20 personnel attending each course) - not applicable. ▪ Refresher environmental awareness training is available as and when required; ▪ All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr; ▪ All staff are made aware of their individual roles and responsibilities in achieving compliance with the environmental authorisation 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: a) Safety notifications; and b) No littering (not applicable). The topics to be communicated will be displayed as per a set schedule for awareness. ▪ Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures;	DPM	Environmental awareness training and weekly toolbox talks	ECO	Monthly	Record of attendance to awareness training and toolbox talks must be filed in the Site Environmental File

Management Outcome: All on-site staff are aware and understand the individual responsibilities in terms of this EMPr.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention. ▪ A record of all environmental awareness training courses undertaken as part of the EMPr must be available; ▪ Educate workers on the dangers of open and/ or unattended fires; ▪ A staff attendance register of all staff to have received environmental awareness training must be available. ▪ Course material must be available and presented in appropriate languages that all staff can understand.					

5.2 Site Establishment Development

Management Outcome: Impacts on the environment are minimised during site establishment, and the development footprint is kept to the demarcated development area.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ A Method Statement must be provided by the Contractor prior to any on-site activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and laydown areas, hazardous materials	Contractor & cEO	Method Statement for site establishment and layout plan	ECO	Once-off approval of method statement On-going monitoring of implementation	Approved Method Statement and layout plan Environmental checklists and reports

Management Outcome: Impacts on the environment are minimised during site establishment, and the development footprint is kept to the demarcated development area.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
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; ▪ Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walkthrough; ▪ Sites must be located where possible on previously disturbed areas; ▪ The camp must be fenced in accordance with ***Section 5.5: Fencing and Gate Installation;*** and ▪ The use of existing accommodation for contractor staff, where possible, is encouraged.					

5.3 Access Restricted Areas

Management Outcome: Access to restricted areas prevented.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Identification of restricted access areas is to be informed by the environmental assessment, site walkthrough, and any additional areas identified during development; ▪ Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any restricted access area, colour coding could be used if appropriate; and ▪ Unauthorised access and development-related activity inside restricted access areas are prohibited.	Contractor & cEO	Demarcation of Access restricted areas and staying within approved areas for construction	ECO & dEO	Once-off identification of restricted access areas On-going monitoring of implementation	Clearly marked restricted access areas Site inspection of No-Go areas

5.4 Access Roads

Management Outcome: Minimise impact on the environment through the planned and restricted movement of vehicles on-site.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Access to the servitude and tower positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area; ▪ An access agreement must be formalised and signed by the DPM, Contractor, and landowner before commencing with the activities; ▪ The access roads to tower positions must be signposted after access has been negotiated and before the commencement of the activities; ▪ All private roads used for access to the servitude must be maintained and, upon completion of the works, be left in at least the original condition; ▪ All Contractors must be made aware of all these access routes; ▪ Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the Contractor's expense; ▪ Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; ▪ In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with ***Section 4.9: Photographic Record***; prior to use and the condition thereof agreed by the landowner, the DPM, and the Contractor; ▪ Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands; and ▪ Access roads must only be developed on pre-planned and approved roads.	Contractor	Access roads must be identified, and agreements formalised before commencing construction	ECO	Monthly	Access road inspection

5.5 Fencing and Gate Installation

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.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Use existing gates provided to gain access to all parts of the area authorised for development, where possible; ▪ Existing and new gates to be recorded and documented in accordance with ***Section 4.9: Photographic Record***; ▪ All gates must be fitted with locks and be kept locked at all times during the development phase unless otherwise agreed with the landowner; ▪ At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner; ▪ Care must be taken that the gates must be so erected that there is a gap of no more than 100mm between the bottom of the gate and the ground – not applicable; ▪ Where gates are installed in jackal-proof fencing, a suitably reinforced concrete sill must be provided beneath the gate (not applicable); ▪ Original tension must be maintained in the fence wires; ▪ All gates installed in electrified fencing must be re-electrified; ▪ All demarcation fencing and barriers must be kept in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities; ▪ Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where appropriate and would not cause harm to the sensitive flora; ▪ Any temporary fencing to restrict the movement of life-stock must only be erected with the landowner's permission.	Contractor	Controlled access to working areas	dEO & ECO	Monthly	Site inspection

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.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All fencing must be developed of high-quality material bearing the SABS mark; ▪ The use of razor wire as fencing must be avoided; ▪ Fenced areas with gate access must remain locked after hours, during weekends, and on holidays if staff is away from the site. Site security will be required at all times; ▪ On completion of the development phase, all temporary fences are to be removed; and ▪ The Contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.					

5.6 Water Supply Management

Management Outcome: Undertake responsible water usage.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ 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 (not applicable); ▪ The Contractor must ensure the following: a) The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river (not applicable); b) No damage occurs to the riverbed or banks, and that the abstraction of water does not entail stream diversion activities (not applicable); and c) All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.	Contractor	Water from appropriately licensed sources Environmental awareness training	ECO & dEO	Monthly	Site inspection

Management Outcome: Undertake responsible water usage.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Ensure water conservation is being practiced by: a) Minimising water use during cleaning of equipment; b) Undertaking regular audits of water systems; c) Including a discussion on water usage and conservation during environmental awareness training; and d) The use of greywater is encouraged.					

5.7 Storm and Wastewater Management

Management Outcome: Impacts to the environment caused by stormwater and wastewater discharges during construction are avoided.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Runoff from the cement/ concrete batching areas must be strictly controlled; ▪ Contaminated water must be collected, stored, and either treated or disposed of off-site, at a location approved by the Project Manager (not applicable); ▪ All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; ▪ Natural stormwater runoff not contaminated during the development, and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO; and ▪ Water contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once suspended solids have been removed from the water by settling these solids in settlement ponds. The release of settled	Contractor, PM & cEO	Stormwater Management Plan (SWMP)	ECO & dEO	Monthly Compliance with the SWMP	Site inspection Approved Method Statement

Management Outcome: Impacts to the environment caused by stormwater and wastewater discharges during construction are avoided.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
water back into the environment must be subject to the Project Manager's approval and support by the ECO.					

5.8 Solid and Hazardous Waste Management

Management Outcome: Wastes are appropriately stored, handled, and safely disposed of at a recognised waste facility.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All measures regarding waste management must be undertaken using an integrated waste management approach; ▪ Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; ▪ A suitably positioned and clearly demarcated waste collection site must be identified and provided; ▪ The waste collection site must be maintained in a clean and orderly manner; ▪ Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; ▪ Staff must be trained in waste segregation; ▪ Bins must be emptied regularly; ▪ General waste produced on-site must be disposed of at registered waste disposal sites/ 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.	Contractor & cEO	General camp house-keeping Provision of bins Awareness training on waste minimisation and re-use	dEO ECO	Weekly Bi-monthly	Provision of waste disposal facilities (bins & skips) Proof of Safe Disposal Certificates

5.9 Protection of Watercourses and Estuaries

Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils fuels, chemicals, aggregate tailings, wash, and contaminated water or organic material resulting from the Contractor's activities; ▪ In the event of a spill, prompt action must be taken to clear the polluted or affected areas; ▪ Where possible, no development equipment must traverse any seasonal or permanent wetland; ▪ No return flow into the estuaries must be allowed, and no disturbance of the Estuarine functional Zone should occur (not applicable); ▪ Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; ▪ There must not be any impact on the long-term morphological dynamics of watercourses or estuaries; ▪ Existing crossing points must be favoured over the creation of new crossings (including temporary access); ▪ When working in or near any watercourse or estuary, the following environmental controls and considerations must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course, or characteristics of a watercourse; b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented, e.g., including ensuring that construction equipment is well maintained;	Contractor & cEO	Method Statement for Working in Watercourses (if applicable)	dEO ECO	Weekly Bi-monthly	Approval and compliance with the Method Statement (if applicable)

Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
c) Where earthwork is being undertaken in close proximity to 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 d) 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.					

5.10 Vegetation Clearing

Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
General: ▪ Indigenous vegetation which does not interfere with the 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; ▪ Search, rescue, and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; ▪ Permits for removal must be obtained from the Department of Forestry, Fisheries and the Environment (DFFE) prior to the cutting or clearing of the affected species, and they must be filed;	Contractor & cEO	Woking within demarcated areas Invasive Alien Plant (IAP) eradication and control	dEO ECO	Weekly Monthly	Site inspection

Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; ▪ Trees felled due to construction must be documented and form part of the Environmental Audit Report; ▪ Rivers and watercourses must be kept clear of felled 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, supervision of a registered pest control operator or is appropriately trained; ▪ A daily register must be kept of all relevant details of herbicide usage; ▪ No herbicides must be used in estuaries; and ▪ All protected species and sensitive vegetation not removed must be clearly marked, and such areas fenced off in accordance with ***Section 5.3: Access Restricted Areas***. **Servitude:** ▪ Vegetation that does not grow high enough to cause interference with overhead transmission and distribution infrastructures, or cause a fire hazard to any plantation, must not be cut or trimmed unless it is growing in the road access area, and then only at the discretion of the Project Manager; ▪ Where clearing for access purposes is essential, the maximum width to be cleared within the servitude must be in accordance to distance as agreed between the landowner and the EA holder; ▪ Alien invasive vegetation must be removed according to a plan (in line with relevant municipal and provincial procedures,					

Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
guidelines, and recommendations) and disposed of at a recognised waste disposal facility; ▪ Vegetation must be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. ▪ MVCD is determined from SANS 10280; ▪ Debris resulting from clearing and pruning must be disposed of at a recognised waste disposal facility unless the landowners wish to retain the cut vegetation; ▪ In the case of the development of new overhead transmission and distribution infrastructures, one metre "trace-line" must be cut through the vegetation for stringing purposes only, and no vehicle access must be cleared along the "trace-line"; and ▪ Alternative methods of stringing that limit the impact on the environment must always be considered.					

5.11 Protection of Fauna

Management Outcome: Disturbance to fauna is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; ▪ The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme; ▪ 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;	Contractor & cEO	Awareness training Injuring, capturing, killing of fauna identified on-site must be reported	dEO & ECO	Monthly	Training material related to faunal management

Management Outcome: Disturbance to fauna is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Nesting sites on existing parallel lines must be documented; ▪ Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; ▪ Bird guards and diverters must be installed on the new line as per the recommendations of the specialist; ▪ No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas; ▪ No deliberate or intentional killing of fauna is allowed; ▪ In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted, and causing power outages; and ▪ 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.					

5.12 Protection of Heritage Resources

Management Outcome: Impact to heritage resources is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Identify, demarcate and prevent impact to all known sensitive heritage features on-site in accordance with the No-Go procedure in ***Section 5.3: Access Restricted Areas***; ▪ Carry out general monitoring of excavations for potential fossils, artifacts, and material of heritage importance; and ▪ All work must cease immediately if any human remains and/ or other archaeological, palaeontological, and historical material	Contractor & cEO	Working within approved areas for construction	dEO & ECO	Monthly	Site inspection

Management Outcome: Impact to heritage resources is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
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.					

5.13 Safety of the Public

Management Outcome: All precautions are taken to minimise the risk of injury, harm, or complaints.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Identify fire hazards, demarcate and restrict public access to these areas, as well as notify the local authority of any potential threats, e.g., large brush stockpiles, fuels, etc.; ▪ All unattended open excavations must be adequately fenced or demarcated; ▪ Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; ▪ Ensure structures vulnerable to high winds are secured; and ▪ Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	Contractor	Compilation of Health and Safety Plan Maintain Health and Safety File	Occupation Health & Safety Officer	Monthly	Health and safety inspections Investigation of major accident/ incidents

5.14 Sanitation

Management Outcome: Clean and well-maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Mobile chemical toilets are installed on-site if no other ablution facilities are available; ▪ The use of ablution facilities and or portable toilets must be used at all times, and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; ▪ Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied, and the contents are managed in accordance with the EMPr; d) 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; e) Toilets are emptied before long weekends and workers holidays and must be locked after working hours; f) Toilets are serviced regularly, and the ECO must inspect toilets to ensure compliance to health standards; and ▪ A copy of the waste disposal certificates must be maintained.	Contractor	Provision of ablution facilities during construction Management of facilities	dEO ECO	Weekly Monthly	Proof of servicing and safe disposal

5.15 Prevention of Disease

Management Outcome: All necessary precautions linked to the spread of disease are taken.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Undertake environmentally-friendly pest control in the camp area; ▪ Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; ▪ The Contractor must ensure that information posters on AIDS are displayed in the Contractor camp area; ▪ Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; ▪ Free condoms must be made available to all staff on-site at central points; ▪ Medical support must be made available; and ▪ Provide access to Voluntary HIV Testing and Counselling Services.	Contractor	Compilation of Health and Safety Plan Maintain Health and Safety File	Occupation Health & Safety Officer	Monthly	Health and safety inspections

5.16 Emergency Procedures

Management Outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; ▪ The Emergency Plan must deal with accidents, potential spillages, and fires in line with relevant legislation; and ▪ All staff must be made aware of emergency procedures as part of environmental awareness training;	Contractor	ERAP Awareness Training	ECO	Monthly	Approved ERAP & training records

Management Outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ The relevant local authority must be made aware of a fire as soon as it starts; and ▪ In an emergency, necessary mitigation measures to contain the spill or leak must be implemented ***(Section 5.17: Hazardous Substances)***.					

5.17 Hazardous Substances

Management Outcome: Safe storage, handling, use, and disposal of hazardous substances.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; ▪ All hazardous substances must be stored in suitable containers as defined in the Method Statement; ▪ Containers must be clearly marked to indicate contents, quantities, and safety requirements; ▪ All storage areas must be bunded. The bunded area must be of sufficient capacity 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 drawn up and kept up to date continuously; ▪ All hazardous chemicals that will be 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;	Contractor	Method Statement for the handling, storage, use, and disposal of hazardous substances	ECO	Monthly	Site inspection of hazardous storage areas and inspection of drip trays and impervious surfaces

Management Outcome: Safe storage, handling, use, and disposal of hazardous substances.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Employees handling hazardous substances/ materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; ▪ The Contractor must ensure that diesel and other liquid fuel, oil, and hydraulic fluid is stored in appropriate storage tanks or bowsers; ▪ The tanks/ bowsers must be situated 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/ bowsers (110% statutory requirement plus an allowance for rainfall); ▪ The floor of the bund must be sloped, draining to an oil separator; ▪ Provision must be made for refuelling at the storage area by protecting the soil with an impervious ground cover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; ▪ All empty externally dirty drums must be stored on a drip tray or within a bunded area; ▪ No unauthorised access into the hazardous substances storage areas must be permitted; ▪ No smoking must be allowed within the vicinity of the hazardous storage areas; ▪ Adequate fire-fighting equipment must be made available at all hazardous storage areas; ▪ Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used;					

Management Outcome: Safe storage, handling, use, and disposal of hazardous substances.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ An appropriately sized spill kit kept on-site relevant to the scale of the activity (ies) involving the use of hazardous substances must be available at all times; ▪ The responsible operator must have the required training to make use of the spill kit in emergencies; ▪ An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; and ▪ In the event of a spill, contaminated soil must be collected in containers and stored in a central location, and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to ***Section 5.7 for Storm and Wastewater Management*** and ***Section 5.8 for Solid and Hazardous Waste Management***.					

5.18 Workshop, Equipment Maintenance and Storage

Management Outcome: Soil, surface water, and groundwater contamination is minimized.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Where possible and practical, all maintenance of vehicles and equipment must take place in the workshop area; ▪ When servicing vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of 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;	Contractor	Method Statement for the workshop, equipment maintenance, and storage	ECO	Monthly	Site inspection

Management Outcome: Soil, surface water, and groundwater contamination is minimized.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Appropriately sized spill kit kept on-site relevant to the scale of the activity taking place must be available; ▪ The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil/ water separator where maintenance work on vehicles and equipment can be performed; and ▪ Water drainage from the workshop must be contained and managed in accordance with ***Section 5.7: Storm and Wastewater Management***.					

5.19 Batching Plants

Management Outcome: Minimise spillages and contamination of soil, surface water, and groundwater					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Concrete mixing must be carried out on an impermeable surface; ▪ Batching plants areas must be fitted with a containment facility for the collection of 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 away from any watercourses, gullies, and drains; ▪ A washout facility must be provided for washing concrete associated equipment. Water used for washing must be restricted; ▪ Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriately licensed disposal facility;	Contractor	Method Statement for batching activities	ECO	Monthly	Site inspection

Management Outcome: Minimise spillages and contamination of soil, surface water, and groundwater					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Empty cement bags must be secured with adequate binding material if these will be temporarily stored on-site; ▪ Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to ***Section 5.20: Dust Emissions***); ▪ Any excess sand, stone, and cement must be removed or reused from the site on completion of the construction period and disposed at a registered disposal facility; and ▪ Temporary fencing must be erected around batching plants in accordance with ***Section 5.5: Fencing and Gate Installation***.					

5.20 Dust Emissions

Management Outcome: Dust prevention measures are applied to minimise the generation of dust.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; ▪ Removal of vegetation must be avoided until soil stripping is required and similarly exposed surfaces must be revegetated or stabilised as soon as is practically 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 make recommendations as to whether dust-damping measures are adequate or whether working will cease altogether until the wind speed drops to an acceptable level;	Contractor	Regular dust suppression Maintaining a dust suppression register	dEO ECO	Daily Monthly	Site inspection Dust suppression register Inspection of Complaints Register relating to dust

Management Outcome: Dust prevention measures are applied to minimise the generation of dust.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Where possible, soil stockpiles must be located 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 40km/h along dust roads or 20km/h when traversing unconsolidated and non-vegetated areas; ▪ Straw stabilisation must be applied at a rate of one bale/ 10m² and harrowed into the top 100mm of top material for all completed earthworks (not applicable); and ▪ For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.					

5.21 Blasting

Management Outcome: Impact to the environment is minimised through a safe blasting practice.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ A suitably licensed blasting contractor must conduct any blasting activity; and ▪ Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours before such activity occurs on-site.	Not applicable				

5.22 Noise

Management Outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ The Contractor must keep 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 must be properly maintained; ▪ Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site daily for construction workers; and ▪ Develop a Code of Conduct for the construction phase in terms of the behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.	Contractor	Compliance with SANS 10103 and OHS Act	dEO ECO	Daily Monthly	Inspection of Complaints Register

5.23 Fire Prevention

Management Outcome: Prevention of uncontrollable fires.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ 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;	Contractor	Fire Prevention Plan	ECO	Monthly	Compliance with Fire Prevention Plan

Management Outcome: Prevention of uncontrollable fires.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on-site; ▪ Two-way swop of contact details between ECO and FPA.					

5.24 Stockpiling and Stockpile Areas

Management Outcome: Erosion and sedimentation as a result of stockpiling are reduced.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on-site to minimise impacts to watercourses, wetlands, and water bodies; ▪ All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; ▪ Stockpiles must not exceed 2m in height; ▪ During periods of strong winds and heavy rain, the stockpiles should be covered with appropriate material (e.g., cloth, tarpaulin, etc.); and ▪ Where possible, sandbags (or similar) should be placed at the bases of the stockpiled material to prevent erosion of the material.	Contractor	Method Statement to be compiled for stockpile management	dEO ECO	Daily Bi-monthly	Site inspection and compliance with Method Statement

5.25 Finalising Tower Positions

Management Outcome: No environmental degradation occurs as a result of the survey and pegging operations.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ No vegetation clearing must occur during survey and pegging operations; ▪ No new access roads must be developed to facilitate access for survey and pegging purposes; ▪ Project Manager, Botanical specialist, and Contractor to agree on final tower positions based on the survey within assessed and approved areas; and ▪ The surveyor is to demarcate (peg) access roads/ tracks in consultation with ECO. No deviations will be allowed without prior written consent from the ECO.	PM Botanical specialist Contractor	Method Statement for survey and pegging operations	dEO ECO	Once-off	Site inspection and compliance with Method Statement

5.26 Excavation and Installation of Foundations

Management Outcome: No environmental degradation occurs as a result of the excavation or installation of foundations.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ 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 150mm topsoil for rehabilitation purposes; ▪ Management of equipment for excavation purposes must be undertaken in accordance with ***Section 5.18: Workshop Equipment Maintenance and Storage***; ▪ Hazardous substance spills from equipment must be managed in accordance with ***Section 5.17: Hazardous Substances***.	Contractor cEO	Method Statement for excavation and installation of foundations	dEO ECO	Daily Monthly	Site inspection Approved Method Statement

Management Outcome: No environmental degradation occurs as a result of the excavation or installation of foundations.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Batching of cement to be undertaken in accordance with ***Section 5.19: Batching Plants***; and ▪ Residual cement must be disposed of in accordance with ***Section 5.8: Solid and Hazardous Waste Management***.					

5.27 Assembly and Erecting Towers

Management Outcome: No environmental degradation occurs as a result of the assembly and erecting of towers.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Prior to the erection, assembled towers and tower sections must be stored on an elevated surface (suggest wooden blocks) to minimise damage to the underlying vegetation; ▪ In sensitive areas, tower assembly must take place off-site or away from sensitive positions; ▪ The crane used for tower assembly must be operated in a manner that minimises impact to the environment; ▪ The number of crane trips to each site must be minimised; ▪ Wheeled cranes must be utilised in preference to tracked cranes; ▪ Consideration must be given to erecting towers by helicopter or by hand where it is warranted to limit the extent of environmental impact; ▪ Access to tower positions to be undertaken in accordance with access requirements specified in ***Section 5.4: Access Roads***; ▪ Vegetation clearance to be conducted in accordance with general vegetation clearance requirements specified in ***Section 5.10: Vegetation Clearing***;	Contractor cEO	Method Statement for assembly and erection of towers	ECO dEO	Bi-monthly	Site inspection Approved Method Statement

Management Outcome: No environmental degradation occurs as a result of the assembly and erecting of towers.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ No levelling at tower sites must be permitted unless approved by the Development Project Manager or Developer Site Supervisor; ▪ Topsoil must be removed separately from subsoil material and stored for later use during the rehabilitation of such tower sites; ▪ Topsoil must be kept in heaps not higher than 1m to prevent the destruction of the seed bank within the topsoil; ▪ Excavated slopes must be no greater than 1:3, but where this is unavoidable, appropriate measures must be undertaken to stabilise the slopes; ▪ Fly rock from blasting activity must be minimised, and any pieces greater than 150mm falling beyond the Working Area must be collected and removed; ▪ Only existing disturbed areas are utilised as spoil areas; ▪ Drainage is provided to control groundwater exit gradient with the spill areas such that migration of fines is kept to a minimum; ▪ Surface water runoff is appropriately channelled through or around spoil areas; ▪ During backfilling operations, care must be taken not to dump the topsoil at the bottom of the foundation and then put spoil on top of that; ▪ The surface of the spoil is appropriately rehabilitated in accordance with the requirements specified in ***Section 5.31: Landscaping and Rehabilitation***; and ▪ The retained topsoil must be spread evenly over areas to be rehabilitated and suitably compacted to effect revegetation of such areas to prevent erosion as soon as construction activities on the site are complete. Spreading of topsoil must not be undertaken at the beginning of the dry season.					

5.28 Stringing

Management Outcome: No environmental degradation occurs as a result of stringing.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Where possible, previously disturbed areas must be used for the siting of winch and tensioner stations. In all other instances, the siting of the winch and tensioner must avoid Access restricted areas and other sensitive areas; ▪ The winch and tensioner station must be equipped with drip trays to contain any fuel, hydraulic fuel, or oil spills and leaks; ▪ Refuelling of the winch and tensioner stations must be undertaken in accordance with ***Section 5.17: Hazardous Substances***; ▪ In the development of overhead transmission and distribution infrastructure, one metre "trace-line" may be cut through the vegetation for stringing purposes only, and no vehicle access must be cleared along "trace-lines." ▪ Vegetation clearing must be undertaken by hand, using chainsaws and hand-held implements, with the vegetation being cut off at ground level. No tracked or wheeled mechanised equipment must be used; ▪ Alternative methods of stringing which limit the impact to the environment must always be considered, e.g., by hand or by using a helicopter; ▪ Where the stringing operation crosses a public or private road or railway line, the necessary scaffolding/ protection measures must be installed to facilitate access. If for any reason, such access has to be closed for any period(s) during development, the persons affected must be given reasonable notice, in writing; ▪ No services (electrical distribution lines, telephone lines, roads, railways lines, pipelines, fences, etc.) must be damaged because of stringing operations. Where disruption to services	Contractor cEO	Method Statement for stringing of towers	dEO ECO	Monthly	Site inspection Approved Method Statement

Management Outcome: No environmental degradation occurs as a result of stringing.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
is unavoidable, persons affected must be given reasonable notice, in writing; ▪ Where stringing operations cross cultivated land, damage to crops is restricted to the minimum required to conduct stringing operations, and reasonable notice (10 workdays minimum), in writing, must be provided to the landowner; and ▪ Necessary scaffolding protection measures must be installed to prevent damage to the structures supporting certain high-value agricultural areas such as vineyards, orchards, nurseries.					

5.29 Socio-economic

Management outcome: Socio-economic development is enhanced.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ 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 for security personnel, must be permitted to stay overnight on the site. This would reduce the risk to local farmers.	Contractor	Communication Plan	ECO	Bi-monthly	Site inspection Approved Communication Plan

5.30 Temporary Site Closure

Management Outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in ***Sections 5.17: Management of Hazardous Substances and 5.18: Workshop, Equipment Maintenance and Storage***; ▪ Hazardous storage areas must be well ventilated; ▪ Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; ▪ Emergency and contact details displayed must be displayed; ▪ Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; ▪ 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 any 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; and ▪ Drip trays must have been emptied and secured.	Contractor cEO	Method Statement for site closure greater than five (5) days	ECO dEO	Bi-monthly	Site inspection Approved Method Statement

5.31 Landscaping and Rehabilitation

Management Outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed to a registered waste site and certificates of disposal provided; ▪ All slopes must be assessed for contouring and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; ▪ All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; ▪ Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition; ▪ Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping, which must be agreed to by the holder of the EA and the landowners; ▪ Rehabilitation of tower sites and access roads outside of farmland; ▪ Indigenous species must be used for with species and/ grasses to where it compliments or approximates the original condition; ▪ Stockpiled topsoil must be used for rehabilitation (refer to ***Section 5.24: Stockpiling and Stockpiled Areas***); ▪ Stockpiled topsoil must be evenly spread to facilitate seeding and minimise loss of soil due to erosion; ▪ Before placing topsoil, all visible weeds from the placement area and the topsoil must be removed; ▪ Subsoil must be ripped before topsoil is placed; ▪ The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment;	Contractor cEO	Method Statement for landscaping and rehabilitation	ECO dEO	Monthly	Site inspection Approved Method Statement

Management Outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Where impacted through construction-related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; ▪ Sloped areas 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 strictly; ▪ Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. Where required, re-vegetation, including hydro-seeding, can be enhanced using a vegetation seed mixture as described below. A mixture of seeds can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area.					

6 ACCESS TO THE GENERIC EMPr

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with regulation 26 (h) of the Environmental Impact Assessment Regulations, 2014 as amended.

PART B: SECTION 2

7 SITE-SPECIFIC INFORMATION AND DECLARATION

7.1 Sub-section 1: Contact Details and Description of the Project

7.1.1 Details of the applicant:

Name of applicant: **Willem den Heijer**
E-mail address: **Willem.denheijer@samancorcr.com**
Tel No: **011 245 1000**
Fax No: **Not Applicable**
Postal Address:
Physical Address: **Block A, Cullinan Place, Cullinan Close, Morningside, Sandton, 2196**

7.1.2 Details and expertise of the EAP:

Name of applicant: **Prashika Reddy (Royal HaskoningDHV)**
E-mail address: **prashika.reddy@rhdhv.com**
Tel No: **087 352 1577**
Fax No: **Not applicable**
The expertise of the EAP (Curriculum Vitae included): **Prashika Reddy is a Senior Environmental Scientist with 19 years of experience in various environmental fields, including EIAs, EMPrs, PPP, and environmental monitoring and audits. She is/ has been part of numerous multi-faceted large-scale projects, including the establishment of linear developments (roads and powerlines), industrial plants, electricity generation plants, mixed-use developments, and mining projects. She is a Professional Natural Scientist (400133/10) with the South African Council for Natural Scientific Professions and a registered EAP with EAPASA.**

7.1.3 Project name:

100MWp Photovoltaic Plant associated with the Tubatse Ferrochrome Smelter, Steelpoort, Fetakgomo Tubatse Local Municipality

7.1.4 Description of the project:

Samancor Chrome Ltd's core business is the mining and smelting of chrome ore. With an annual production capacity of 2.4 million tons of ferrochrome, Samancor Chrome is one of the largest integrated ferrochrome producers in the world. The ferrochrome produced is used in areas of the stainless-steel smelting process. Samancor Chrome has been, and continues to be, a major player in ferrochromium production. The company's total chromite resources exceed 900 million tons and are expected to support current mining activity for well over 100 years at the current rate of extraction. Some ores and concentrates are exported, but main allotments are destined for conversion into ferrochrome at the alloy plants.

The Tubatse Ferrochrome (TFC) Smelter was initially built as a three-furnace operation in 1975 as a joint venture between Gencor Ltd and Union Carbide Inc. (USA). In the same year, the Union Carbide Inc. shareholding was taken over by Samancor Chrome, and in 1989, Samancor Chrome acquired the Gencor Ltd shareholding. During the years 1989 – 1990, the plant was expanded to five furnaces with the sixth furnace being built in 1996. The plant is situated in Steelpoort, Limpopo Province and is in close proximity

to the Eastern Chrome Mines. The core business of the operation is the production of charge chrome using six Submerged-Arc Furnaces, one metal recovery plant, and a Pellet and Sintering Plant.

The climate change concerns and rising electricity tariffs in South Africa, combined with the increasingly severe load shedding patterns experienced across the country, has a negative impact on the production and revenue of Samancor Chrome's business. This together with the recent announcement by the President of South Africa to allow for an increase to 100MW embedded generation threshold has motivated Samancor Chrome to consider renewable energy generation at their smelter plants. Implementing solar Photovoltaic (PV) generation will result in improved availability of supply and reduced utility bills as well as going 'green' in terms of environmental considerations.

Samancor Chrome is therefore proposing the development of a 100 Megawatt peak (MWp) Photovoltaic (PV) Plant over 5 potential sites adjacent to the TFC Smelter in Steelpoort, Fetakgomo Tubatse Local Municipality (FGTM).

Samancor Chrome invited Independent Power Producers (IPPs) to respond to a Request for Proposal (RFP) in March 2021, to finance, develop, construct, own, operate and maintain the PV plant, in order to supply electricity to Samancor Chrome's TFC Smelter. It is Samancor Chrome's intent to sign a Power Purchase Agreement (PPA) with the successful IPP for a minimum of 20 years.

7.1.5 Project location:

The project area is located on opposite sides of the R555 and to the south of the Steelpoort River, Limpopo Province. The project area falls within the Sekhukhune District Municipality (SDM) and the FGTM within Ward 31. Small settlements of Pelaneng (located to the north), Stocking, Matholeng and Mohlakwana (located to the east) exist within the project area. The town of Steelpoort is located to the east of the TFC Smelter.

The details regarding the proposed sites are provided Table 2 and project coordinates in Table 3.

Table 2: Property Details of the PV Plants

Site	Size (ha)	Property Details	Landowner	21 Digit Surveyor-General Code
1	31.69	Olifantspoortje 319 KT Portion 5	Steelpoort Prop cc	T0KT00000000031900005
		Goudmyn 337 KT Portion 10	Goldbroz Inv Pty Ltd	T0KT00000000033700010
2	24.19	Goudmyn 337 KT Portion 10	Goldbroz Inv Pty Ltd	T0KT00000000033700010
3	15.82	Goudmyn 337 KT Portion 0	Samancor Chrome Ltd	T0KT00000000033700000
4	20.04	Goudmyn 337 KT Portion 0	Samancor Chrome Ltd	T0KT00000000033700000
5	70.41	Goudmyn 337 KT Portion 0	Samancor Chrome Ltd TCTA	T0KT00000000033700000
		Goudmyn 337 KT Portion 6	Samancor Chrome Ltd TCTA	T0KT00000000033700006

Table 3: Project Coordinates

Component	Co-ordinates
Powerlines	A (From Site 1): 24°43'30.41"S; 30°12'19.61"E
	B (Bend Point): 24°43'27.78"S; 30°12'17.11"E
	C: 24°43'32.73"S; 30°12'6.88"E
	D: 24°43'36.48"S; 30°11'59.74"E
	E (Bend Point): 24°43'39.07"S; 30°11'54.44"E
	F (Bend Point): 24°43'44.21"S; 30°11'51.93"E
	G (From Site 1): 24°43'34.36"S; 30°12'21.04"E
	H: 24°43'39.29"S; 30°12'12.03"E
	I: 24°43'43.24"S; 30°12'5.03"E
	J: 24°43'49.39"S; 30°11'54.59"E
	K: 24°43'58.03"S; 30°11'58.60"E
	L: 24°44'9.59"S; 30°12'4.37"E
	M (Bend Point): 24°44'21.13"S; 30°12'9.73"E
	N (From Site 2): 24°44'14.26"S; 30°12'22.91"E
	O: 24°44'30.09"S; 30°11'53.31"E
	P: 24°44'30.58"S; 30°11'52.77"E
	Q (Bend Point): 24°44'40.05"S; 30°11'36.85"E
	R (Bend Point): 24°44'51.22"S; 30°11'25.78"E
	S: 24°44'43.64"S; 30°11'20.09"E
	T (Bend Point): 24°44'35.02"S; 30°11'13.63"E
	U (From Site 5): 24°44'23.45"S 30°11'8.31"E
	V: 24°44'54.05"S; 30°11'19.11"E
	W (Bend Point): 24°44'58.02"S; 30°11'11.17"E
	X: 24°45'3.85"S; 30°11'8.72"E
	Y: 24°44'55.27"S; 30°11'0.95"E
	Z (From Site 4): 24°44'45.80"S; 30°10'52.59"E

7.2 Technical Description

The infrastructure required to connect the various solar PV sites to the Samancor 33kV power grid is accommodated in the power corridors. Overhead line or underground cable technology can be used for the power evacuation in these corridors. The proposed width of the power corridors is 11m for a single corridor and 22m in cases where the corridor needs to double up to accommodate the proposed 100 MW power flow.

Where overhead AC powerlines are used, the powerlines will comprise of a wood pole tower for the 33kV powerlines. In cases where there is a double power corridor, either two wood pole lines will be used or a single steel monopole with a double circuit configuration. The powerlines will be of varying lengths.

The height of the single circuit wood pole construction is 11m - 13m and the steel monopoles are typically 20m tall.

7.3 Sub-section 2: Development Footprint Site Map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. Once the web-based screening tool identified in regulation 16(1) (v) of the Environmental Impact Assessment Regulations, 2014 is available, the sensitivity map must be prepared from this system. The map indicates areas/ features of sensitivity based on the assessment findings and illustrated according to four tiers, Very High, High, Medium, or Low. The sensitivity map shall also identify the nature of each sensitive feature, e.g., raptor nest, threatened plant species, archaeological site, etc. Sensitivity maps shall identify features within the planned working area and any known sensitive features in the surrounding landscape. The overhead transmission and distribution profile shall be illustrated at an appropriate resolution to enable fine-scale interrogation. It is recommended that <20 m of overhead transmission and distribution length is illustrated per page in A3 landscape format. Where considered appropriate, photographs of sensitive features in the context of tower positions shall be used.

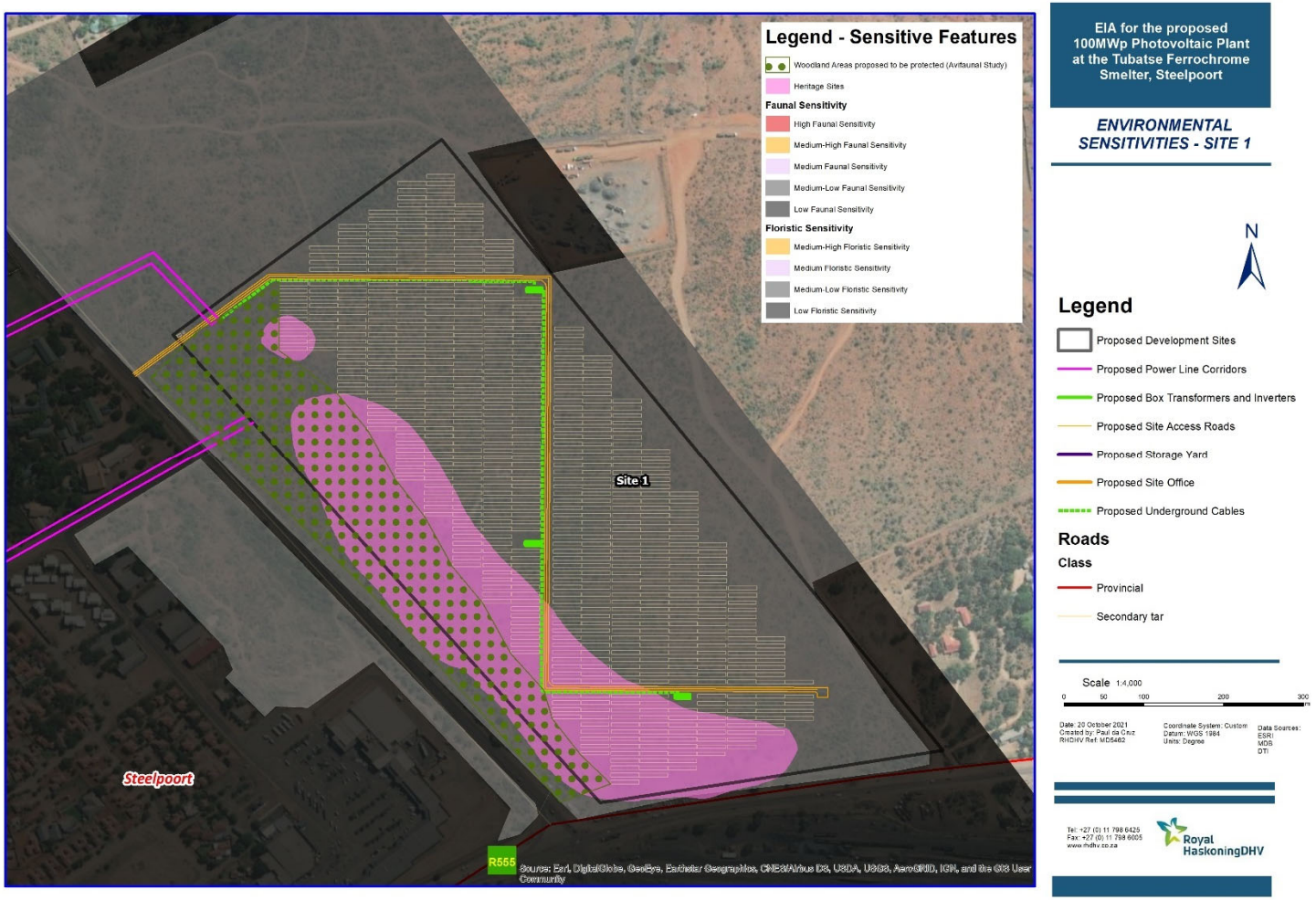

Figure 1: Sensitivity Map – Site 1

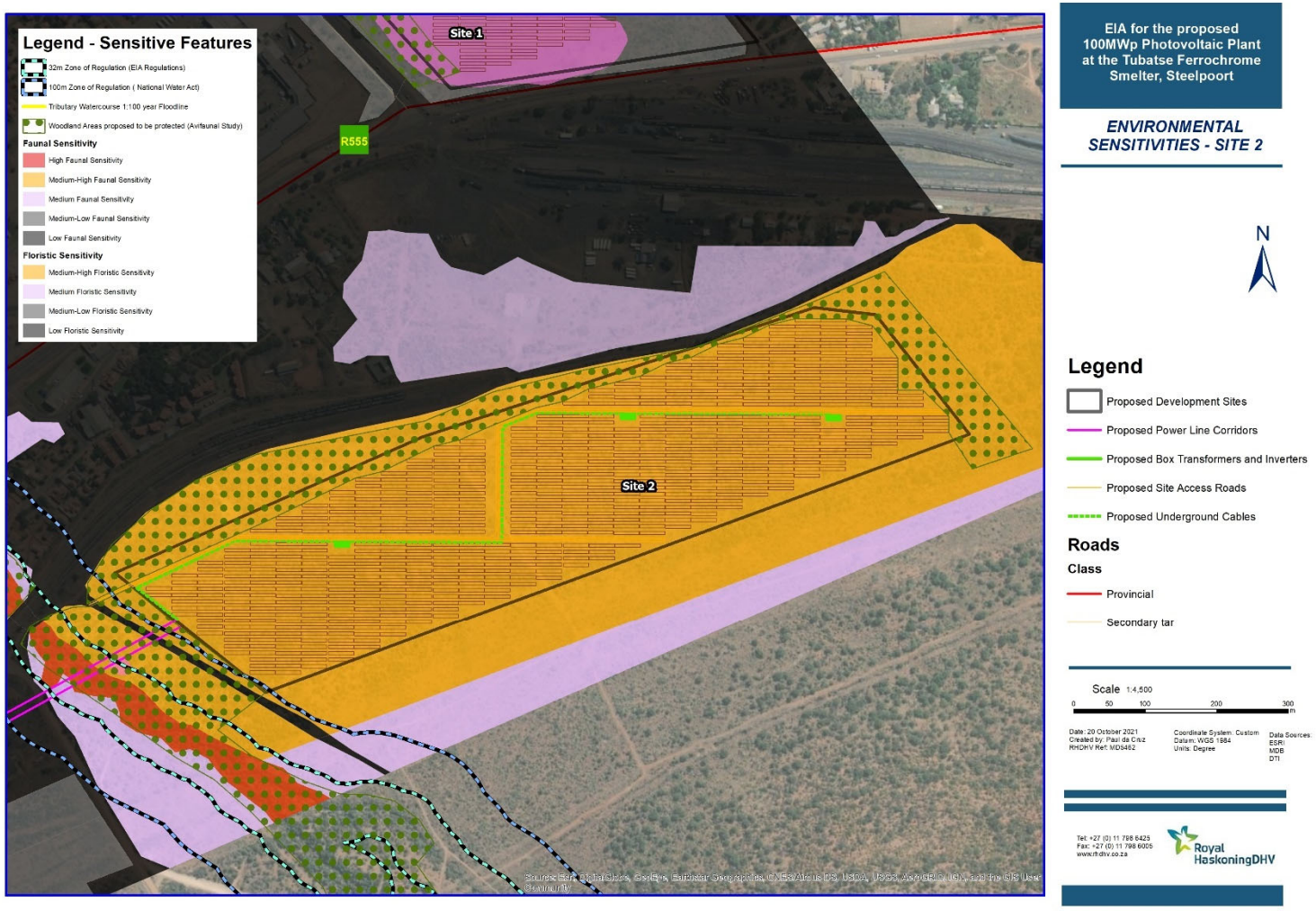

Figure 2: Sensitivity Map – Site 2

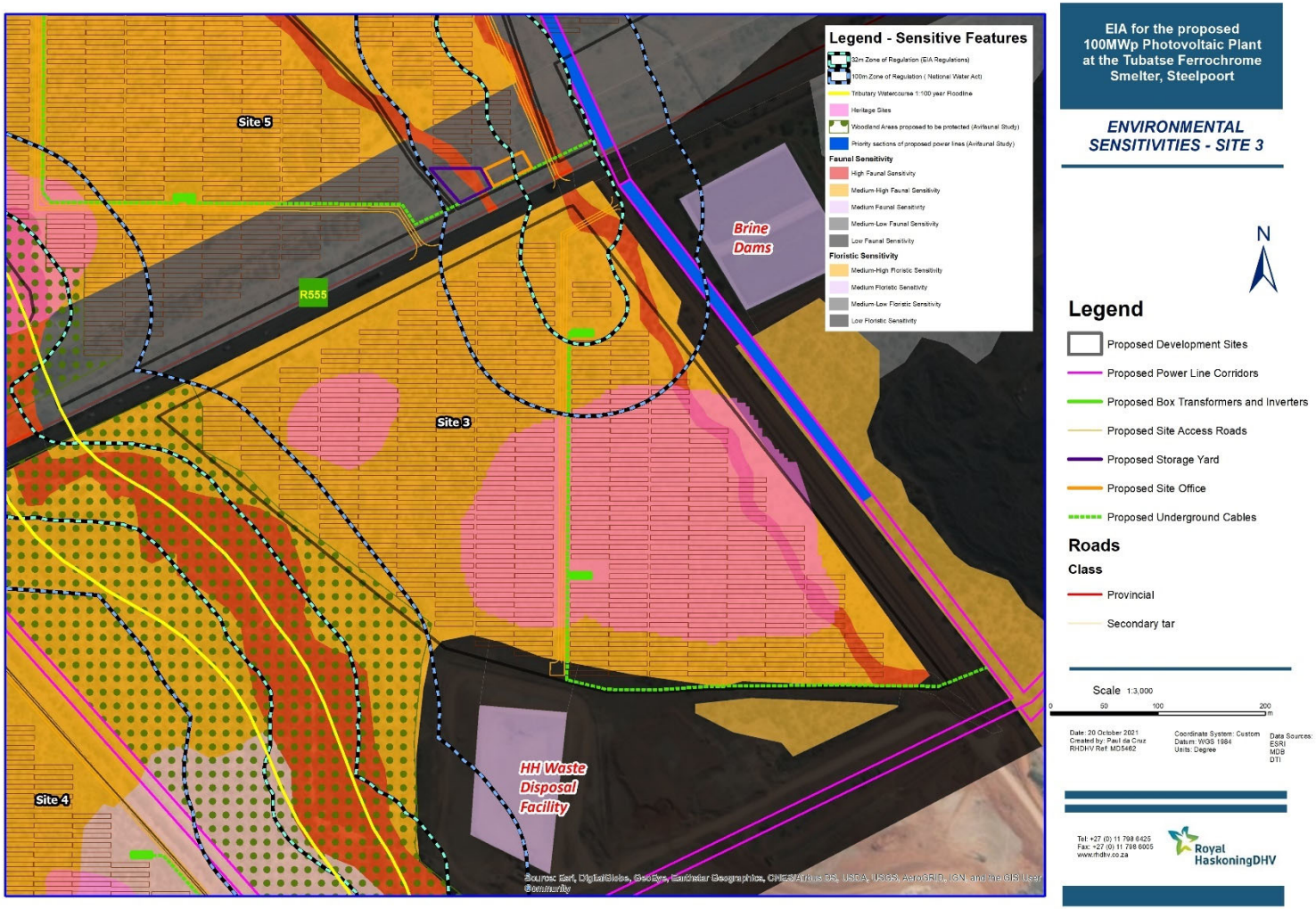

Figure 3: Sensitivity Map – Site 3

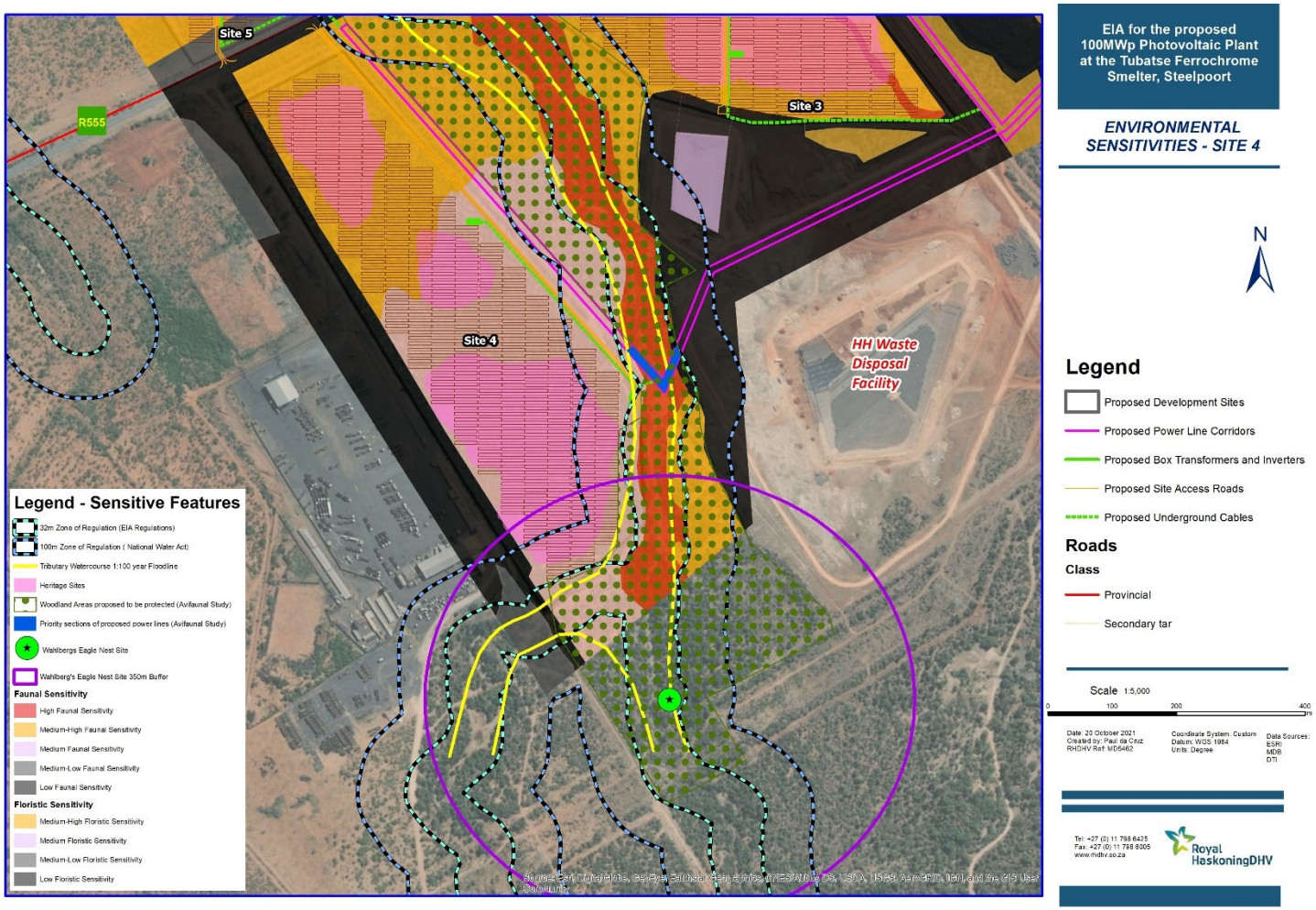

Figure 4: Sensitivity Map – Site 4

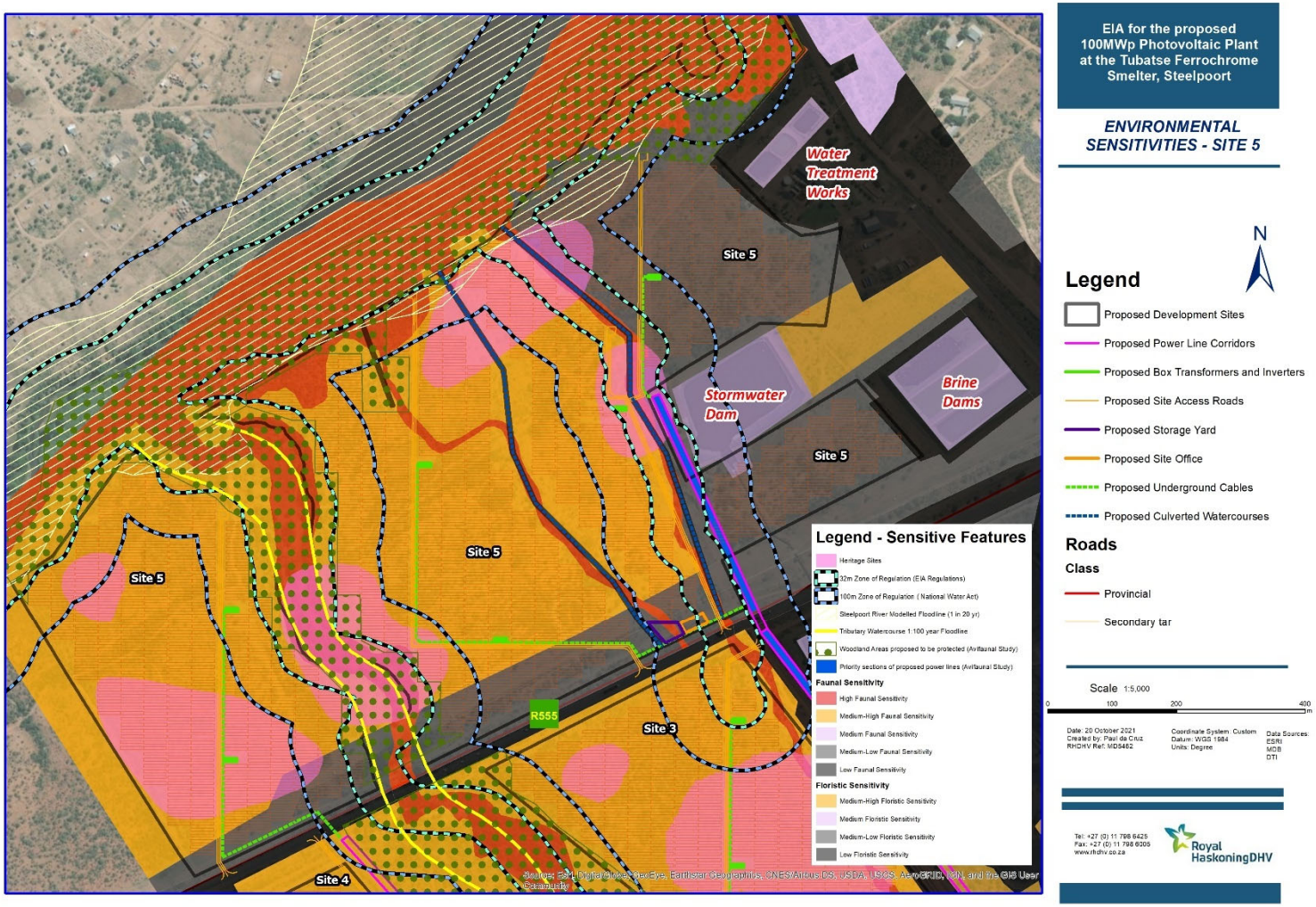

Figure 5: Sensitivity Map – Site 5

7.4 Sub-section 3: Declaration

The proponent or applicant or holder of EA affirms that they will abide and comply with the prescribed impact management outcomes and actions as stipulated in part B, section 1 of the generic EMPr and have the understanding that the impact management outcomes and actions are legally binding.

Signature Proponent/applicant/ holder of EA Date:

FINAL EMPR TO BE SIGNED

PART C

8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/ attributes are present on the site which require more specific impact management outcomes and actions not included in the pre-approved generic EMPr template to manage impacts, those impact management outcomes and actions must be included in this section. These specific management controls must be referenced spatially and must include impact management outcomes and actions. The management controls, including impact management outcomes and actions, must be presented in the pre-approved generic EMPr template format. This applies only to additional controls that are necessary. An EAP must prepare the information in this section, and the name and expertise of the EAP, including the curriculum vitae, are to be included.

This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if Part C applies to the site, it must be submitted to the competent authority for approval before commencement of the activity. Once approved, Part C forms part of the EMPr for the site and is legally binding.

8.1 Vegetation Clearing

Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure. All construction work must comply with the conditions of the relevant authorisations, licences and permits.

Impact Management Actions	Implementation		Monitoring		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Prior to site clearance, a detailed 'walkthrough' must be conducted to ascertain the number, abundance and physical conditions of all protected tree species (*Balanites maughamii, Boscia albitrunca, and Sclerocarya birrea subsp. caffra)* were observed in the project area) to assist with permit application (DFFE). ▪ Prior to site clearance, conduct a detailed 'walkthrough' of the proposed site to ascertain the number, abundance and physical conditions of all protected plant species (*Adenia fruticosa* subsp. *fruticose*, *Elephantorrhiza praetermissa, Eulophia petersii*, *Stapelia gettliffei and Stapelia gigantea)* to	Ecologist	Walkthrough by Ecologist DFFE & LDEDET Permits Biodiversity Monitoring Programme	ECO dEO	Once-off Once-off Annual monitoring	Site inspection Walkthrough Report Annual Biodiversity Monitoring Programme

Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure. All construction work must comply with the conditions of the relevant authorisations, licences and permits.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
assist with permit application (Limpopo Department of Economic Development, Environment and Tourism). ▪ Develop and execute a Search and Rescue operation for certain plants/ trees as per recommendations from the Final Walkthrough Report. These plants should be relocated to a secure, suitable, and appropriate location, taking care to duplicate existing habitat conditions as far as possible. It should be noted that the transportation and relocation process of protected plant species is also subject to permitting requirements; this process should be guided by the Environmental Officer and executed by a suitable ecologist. ▪ Develop and implement a biodiversity monitoring programme to establish long-term trends of floristic and faunal diversity patterns and the latent and immediate effects of the project on these receiving environments.					

8.2 Protection of Fauna

Management Outcome: Disturbance to fauna is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
General: ▪ Natural corridors (e.g. riparian thicket and drainage lines) must be retained between the sites to promote and allow for the movement of mobile fauna. ▪ The project footprint sites should be "screened" prior to, and during the construction phase for reptile species of conservation concern (especially for *Kinixys lobatsiana*) by a qualified herpetologist/zoologist. This person should also be capable of handling venomous snakes. All species found should be relocated to suitable habitat not more than 50km from the study sites.	Contractor cEO	Demarcation of Access restricted areas and staying within approved areas for construction Awareness training Injuring, capturing, killing of fauna identified on-site must be reported	ECO dEO	Monthly	Site inspection

Management Outcome: Disturbance to fauna is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Natural corridors (e.g. riparian thicket and drainage lines) must be retained between the sites to promote and allow for the movement of mobile fauna.					
Avifauna: ▪ A 350m buffer must be demarcated around the Wahlberg's Eagle nest site in which no development must occur. 350m is the distance of southern part of the truck depot from the nest location, and which the pair appears to tolerate human activity. ▪ Should any part of construction at Sites 3 and 4 be undertaken during the period of Wahlberg's Eagle breeding (September to March), the nest site and any other nest sites located must be monitored in the manner described in the Avifaunal Impact Assessment Report. ▪ Apply appropriate deterrent devices to prevent birds from nesting on important structures. ▪ Monitor any nest-building activities and remove/ trim nests that are a risk (fire risk or affecting the operations of the solar facilities) with the consent of the local Conservation Department. Trimming should only be conducted during the non-breeding season. ▪ Apply nest boxes for owls along the perimeter of the facilities to assist with rodent control. ▪ Maintain residual woodland habitat that is located adjacent to, and in some cases in between sites located adjacent to one another. These include: o The riparian zone of the Steelpoort River located to the north of Site 5. o The riparian zone of the watercourse and flanking woodland located between Site 4 and the H:H Waste Facility dam and Site 3. o The watercourse and riparian zone that bisects Site 5. o Remnant woodland between the R37 link road and the solar panel arrays on Site 1.	Avifaunal Specialist	Bird Monitoring Programme	ECO dEO	Monthly	Bird Monitoring Reports

Management Outcome: Disturbance to fauna is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
○ Remnant woodland located between the northern boundary of Site 2 and the rail shunting yards. ○ The watercourse located immediately west of Site 2. ○ Implement a pre-construction and post-construction (operations) bird monitoring regime.					

8.3 Protection of Water Resources

Management Outcome: Pollution, sedimentation and contamination of the watercourse environment is avoided.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ During excavation activities, the topsoil and vegetation should be stockpiled separately from other material outside of the 32 m NEMA ZoR. ▪ No vegetation may be removed from the 32m ZoR surrounding the watercourse where no infrastructure is planned within 32 m thereof, as this provides a natural buffer zone around the watercourses which disperse surface runoff into the watercourses, and thus prevents sedimentation and erosion thereof. ▪ The reaches of the watercourses where no activities are planned to occur must be considered No-Go (Access Restricted) areas. These No-Go areas can be marked at a maximum distance of 5m upstream and downstream of the proposed road upgrade crossing. This 5m buffer area would allow for construction personnel, vehicles (if applicable) to enter the watercourse crossing where the road is proposed to be constructed. ▪ During the construction of new roads and associate cable installation that may potentially traverse watercourses, a buffer of no more than 5m on either side of the proposed road reserve through the watercourses may be impacted. This area must be cordoned off, and no vehicles or personnel are permitted outside of the authorised construction area.	Contractor cEO	Demarcation of Access restricted areas and staying within approved areas for construction	ECO dEO	Monthly	Site inspection

Management Outcome: Pollution, sedimentation and contamination of the watercourse environment is avoided.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Aquatic biomonitoring of the Steelpoort River and habitat monitoring of the drainage channels must take place during construction and once the construction has been completed, when all rehabilitation activities have been implemented. Results obtained in this aquatic ecological baseline report should be used for temporal comparison. If any problematic trends are identified, the reason for impact must be identified and the appropriate mitigatory action initiated. All work must be completed by an SA River Health Programme Accredited assessor and must take place on a minimum frequency of 6 months.	River Health Programme Accredited assessor	Aquatic biomonitoring	ECO dEO	6-months	Aquatic Biomonitoring Reports

8.4 Protection of Heritage Resources

Management Outcome: Impact to heritage resources is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Implement a chance to find procedures in case where possible heritage finds are uncovered. ▪ Burial grounds and graves should be demarcated with a 30m buffer as a No-Go area. ▪ It is recommended that consultation with regards to Site 5-8 is done with the local authorities before construction commence to determine the site's social significance. ▪ If any of the identified archaeological sites on Sites 3, 4 and 5 are to be impacted a Phase 2 archaeological mitigation process must be implemented. This will include, surface collections, test excavations and analysis of recovered material. A permit issued under Section 35 of the NHRA will be required to conduct such work. On completion of the mitigation work the Developer can apply for a destruction permit together with a mitigation report. ▪ If fossil remains are discovered during any phase of construction, either on the surface or exposed by fresh	Contractor & cEO Archaeological	Working within approved areas for construction Chance Find Protocol Section 35 Permits	dEO & ECO	Monthly	Site inspection

Management Outcome: Impact to heritage resources is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
excavations the Chance Find Protocol must be implemented by the ECO in charge of these developments.					

Appendix I:
Generic EMPr - Substation

REPORT

Generic Environmental Management Programme for the 33kV Connector Substations - 100MWp Photovoltaic Plant associated with the Tubatse Ferrochrome (TFC) Smelter, Fetakgomo Tubatse Local Municipality Ref 14/12/16/3/3/2/2079

Generic EMPr for the 33kV Connector Substations

Client: Samancor Chrome Pty Ltd

Reference: MD5462-RHD-ZZ-XX-RP-Z-0001

Status: S0/P01.01

Date: 29 October 2021

Royal HaskoningDHV

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Document title:	Generic Environmental Management Programme for the 33kV Connector Substations - 100MWp Photovoltaic Plant associated with the Tubatse Ferrochrome (TFC) Smelter, Fetakgomo Tubatse Local Municipality Ref 14/12/16/3/3/2/2079
Document short title:	
Reference:	MD5462-RHD-ZZ-XX-RP-Z-0001
Status:	P01.01/S0
Date:	29 October 2021
Project name:	The Development of a 100MWp Photovoltaic Plant associated with the Tubatse Ferrochrome (TFC) Smelter
Project number:	MD5462
Author(s):	Seshni Govender

Drafted by:	Seshni Govender & Prashika Reddy
Checked by:	Prashika Reddy
Date:	21-10-2021
Approved by:	Prashika Reddy
Date:	21-10-2021

Classification
Project related

Royal HaskoningDHV

Table of Contents

Table of Tables

Table of Figures

PART A – GENERAL INFORMATION

1 DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA has that meaning, and 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 key 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 - The 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 Substances 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/ ECO/ Engineer in response to this EMPr. The Method Statement must set out the equipment, materials, labour and method(s) the Contractor proposes using 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 is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification;

The Method Statement shall cover applicable details with regard to:

(i) Construction procedures;
(ii) Plant, materials and equipment to be used;
(iii) Transporting the equipment to and from 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 (or action to be taken if containment is not possible) 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 means all solid waste, including 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 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil;

Works means the Works to be executed in terms of the Contract.

2 ACRONYMS AND ABBREVIATIONS

CA	Competent Authority
cEO	Contractors Environmental Officer
DFFE	Department of Forestry, Fisheries and the Environment
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
MSDS	Material Safety Data Sheet
NCDAERL	Northern Cape Department for Agriculture, Environmental Affairs, Rural Development and Land Reform
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)
SOP	Standard Operating Procedure
RI&AP's	Registered Interested and affected parties

This EMPr is based on the generic Environmental Management Programme for substation infrastructure for electricity transmission and distribution (Government Gazette No 42323, 22 March 2019), contemplated in Regulations 19(4), 23(4) and Appendix 4 to the Environmental Impact Assessment Regulations, 2014, as amended.

3 ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities, and reporting lines within an institutional framework. This section of the generic EMPr gives guidance to the various environmental roles and reporting lines.

Table 1: Guide to roles and responsibilities for implementation of a generic EMPr

Function	Role and Responsibilities
Developer's Project Manager (DPM)	Role 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 the mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent. Responsibilities ▪ 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 of site instructions to the Contractor for corrective actions required; ▪ Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. ▪ Overall management of the project and EMPr implementation; and ▪ Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	Role The DSS reports directly to the DPM, oversees site works, 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. Responsibilities ▪ Ensure that all Contractors identify a contractor's Environmental Officer (cEO); ▪ Must be fully conversant with the conditions of the EA. ▪ Oversees site works, liaison with Contractor, DPM, and ECO; ▪ Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO;

Function	Role and Responsibilities
	▪ Issuing of 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)	Role The ECO should have appropriate training and experience in the implementation of 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 and 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 regarding all environmental matters. The Contractor, contractor Environmental Officer (cEO) and developer Environmental Officer (dEO) are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and EMPr. The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested &Affected Parties' (RI&AP's), as required. 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 which have a cost implication (i.e., those that are deemed to be a variation, not allowed for in the 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. Responsibilities The responsibilities of the ECO will include the following: ▪ Be familiar with the recommendations and mitigation measures of this EMPr; ▪ Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; ▪ Undertake regular and comprehensive site inspections/ audits of the construction site according to the generic EMPr and applicable licenses in order to monitor compliance as required; ▪ Educate the construction team about the management measures contained 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;

Function	Role and Responsibilities
	▪ Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements; ▪ In consultation with the Developer Site Supervisor, order the removal of person(s) and/ or equipment which are in contravention of the specifications of the EMPr and/ or environmental licenses; ▪ 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 as well as 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.) as well as corrective and preventive actions taken; ▪ Checking the cEO's public complaints register in which all complaints are recorded, as well as action 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 training programmes of the Contractor; ▪ 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; ▪ Communication of all modifications to the EMPr to the relevant stakeholders.
developer Environmental Officer (dEO)	Role The dEO will report to the Project Manager and are responsible for the implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners, as well as a range of environmental coordination responsibilities. Responsibilities ▪ 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, Contractor(s);

Function	Role and Responsibilities
	▪ Confine the development site to the demarcated area; ▪ Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); ▪ Assist the contractors in addressing environmental challenges on-site; ▪ Assist in incident management: ▪ Reporting environmental incidents to developer and ensuring that corrective action is taken and lessons learned shared; ▪ Assist the Contractor in investigating environmental incidents and compile investigation reports; ▪ Follow-up on pre-warnings, defects, non-conformance reports; ▪ Measure and communicate environmental performance to the Contractor; ▪ Conduct environmental awareness training on-site together with ECO and cEO; ▪ 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 work together with the ECO and Contractor.
Contractor	<u>Role</u> The Contractor appoints the cEO and has overall responsibility 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 on-site activities as 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 for overhead electricity transmission and distribution infrastructure activities. <u>Responsibilities</u> ▪ Project delivery and quality control for the construction 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; ▪ Ensure that safe, environmentally acceptable working methods and practices are implemented and 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) prior to the commencement of construction activities to confirm the construction procedure and designated activity zones; ▪ Ensure that Contractors' staff (or sub-contractors) repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in the EMPr, to the satisfaction of the ECO.

Function	Role and Responsibilities
contractor Environmental Officer (cEO)	Role 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; a 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 cEO shall meet the following criteria: Responsibilities ▪ Be on-site throughout the duration of the project and be dedicated to the project; ▪ Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on-site; ▪ Implementing the environmental conditions, guidelines and requirements as stipulated within 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 reports and corrective action reports for submission to the ECO; ▪ Assist the ECO with the preparing of the monthly report; and ▪ Where more than one Contractor is undertaking work on-site, each company appointed as a Contractor will appoint a cEO representing that company.

4 ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the generic EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all overhead transmission and distribution electricity infrastructure projects as a minimum requirement.

4.1 Document Control/ Filing System

The holder of the EA is solely responsible for the upkeep and management of the generic EMPr file. At a minimum, all documentation detailed below will be stored in the generic EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the Developer's Site Supervisor (where applicable). This duplicate file will be the responsibility of the ECOs and must remain current and up to date. The filing system must be updated, and relevant documents added as required. The generic EMPr file must always be made available on request by the CA (in terms of NEMA EIA regulation) or other relevant authorities. The generic EMPr file will form part of any environmental audits undertaken as prescribed in the Regulations.

4.2 Documentation to be Available

At the outset of the project the following documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development;
- 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 a clear reference is made to the non-compliance record;
- Complaints register.

4.3 Weekly Environmental Checklist

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS on a weekly basis.

The checklists will form the basis for the Monthly Environmental Reports. Copies of all completed checklists will be attached as Annexures to the Environmental Audit Report as required in terms of the EIA Regulations.

4.4 Environmental Site Meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees. Each set of minutes must clearly 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 in accordance with the EMPr.

The Method Statement shall cover applicable details with regard to:

- Development procedures;
- Materials and equipment to be used;
- Getting the equipment to and from site;
- How the equipment/ material will be moved while on-site;
- How and where 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 generic 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 prior to the programmed commencement date of the subject works or 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 – Protected, clearing, aliens, felling;
- Access management – roads, gates, crossings etc.;
- Fire plan;
- Waste management transport, storage, segregation, classification, disposal (all 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 the Contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

4.6 Environmental Incident Log (Diary)

The ECOs are 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 notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this generic 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 generic 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 generic 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 Developer's Site Supervisor or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the generic 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 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 pertaining to 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 the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant CA for them to deal with the transgression, as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, 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 a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required to take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing 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. A corrective action is considered complete once the report has signed off by the ECOs.

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 as well used in cases of damages claims if they arise. Each image must be dated, and a brief description note attached.

The Contractor shall:

- Allow the ECOs access to take photographs of all areas, activities and actions.

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

- Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
- All bunding and fencing;
- Road conditions and road verges;
- Condition of all farm fences;
- Topsoil storage areas;
- All areas to be cordoned off during construction;
- Waste management sites;
- Ablution facilities (inside and out);
- Any non-conformances deemed to be "significant";
- All completed corrective actions for non-compliances;
- All required signage;
- Photographic recordings of incidents;
- All areas before, during and post rehabilitation; and
- 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 is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

- Record the name and contact details of the complainant;
- Record the time and date of the complaint;
- Contain a detailed description of the complaint;
- Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
- Contain a copy of the ECOs written response to each complaint received and keep a record of 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 a damage claim is issued by the complainant, the ECOs shall respond as described in ***Section 4.11*** below.

4.11 Claims for Damages

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

- Record the full detail of the complaint as described in ***Section 4.10*** above;
- The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
- Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
- A formal record of the response by the ECOs to the claimant as well as the rectification of the method of making payments not amount will be recorded in the EMPr file.

4.12 Interactions with Affected Parties

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

The ECOs shall:

- Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
- Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
- Ensure that a complaints telephone number is made available to all landowners and affected parties; and
- Ensure that contact with affected parties is courteous at all times.

4.13 Environmental Audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes included in the EMPr file and submitted to the CA at intervals as indicated in the EA.

The ECOs must prepare a monthly EAR. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr
file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the
CA. At a minimum the monthly report is to cover the following:

- Weekly 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
- Minutes of the Bi-monthly Environmental Site Meetings.

4.14 Final Environmental Audits

On final completion of the rehabilitation and/ or requirements of the EA, a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

PART B: SECTION 1

5 IMPACT MANAGEMENT OUTCOMES AND ACTIONS

This section provides a pre-approved generic EMPr template with aspects that are common to the development of overhead electricity transmission and distribution infrastructure. There is a list of aspects identified for the development or expansion of overhead electricity transmission and distribution infrastructure, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identified Holders of EAs are responsible to ensure the implementation of these outcomes and actions for all projects as a minimum requirement, in order to mitigate the impact of such aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity.

The template provided below is to be completed by providing the information under each heading for each environmental impact management action. The items listed below that are not applicable to this project are mark as not applicable and will not form part of the impact management actions. The completed template must be signed and dated on each page by both the Contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the Contactor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

5.1 Environmental Awareness Training

Management Outcome: All on-site staff are aware and understands the individual responsibilities in terms of this EMPr.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All staff must receive environmental awareness training; ▪ The Contractor must allow for sufficient sessions to train all personnel (with no more than 20 personnel attending each course – not applicable); ▪ Refresher environmental awareness training is available as and when required; ▪ All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr; ▪ All staff are made aware of their individual roles and responsibilities in achieving compliance with the environmental authorisation 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: a) Safety notifications; and b) No littering (not applicable). The topics to be communicated will be displayed as per a set schedule for awareness. ▪ Environmental awareness training must include as a minimum the following: a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response procedures; d) Emergency procedures; e) Procedures to be followed when working near or within sensitive areas; f) Wastewater management procedures;	DPM	Environmental awareness training and weekly toolbox talks	ECO	Monthly	Record of attendance to awareness training and toolbox talks must be filed in the Site Environmental File

Management Outcome: All on-site staff are aware and understands the individual responsibilities in terms of this EMPr.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
g) Water usage and conservation (as per the requirements of the water use authorisation); h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and k) Disease prevention. ▪ A record of all environmental awareness training courses undertaken as part of the EMPr must be available; ▪ Educate workers on the dangers of open and/ or unattended fires; ▪ A staff attendance register of all staff to have received environmental awareness training must be available. ▪ Course material must be available and presented in appropriate languages that all staff can understand.					

5.2 Site Establishment Development

Management Outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ A Method Statement must be provided by the Contractor prior to any on-site activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and laydown 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	Contractor & cEO	Method Statement for site establishment and layout plan	ECO	Once-off approval of method statement On-going monitoring of implementation	Approved Method Statement and layout plan Environmental checklists and reports

Management Outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
staff accommodation, cooking and ablution facilities, waste and wastewater management; ▪ Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; ▪ Sites must be located where possible on previously disturbed areas; ▪ The camp must be fenced in accordance with ***Section 5.5: Fencing and Gate Installation;*** and ▪ The use of existing accommodation for contractor staff, where possible, is encouraged.					

5.3 Access Restricted Areas

Management Outcome: Access to restricted areas prevented.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development; ▪ Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate; and ▪ Unauthorised access and development related activity inside access restricted areas is prohibited.	Contractor & cEO	Demarcation of Access restricted areas and staying within approved areas for construction	ECO & dEO	Once-off identification of access restricted areas On-going monitoring of implementation	Clearly marked access restricted areas Site inspection of No-Go areas

5.4 Access Roads

Management Outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on-site.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ An access agreement (in the form of a Traffic Management Plan) must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; ▪ All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition; ▪ All Contractors must be made aware of all these access routes; ▪ Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the Contractor's expense; ▪ Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; ▪ In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with ***Section 4.9: Photographic Record***; prior to use and the condition thereof agreed by the landowner, the DPM, and the Contractor; ▪ Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands; and (not applicable); ▪ Access roads must only be developed on pre-planned and approved roads.	Contractor	Access roads must be identified, and agreements formalised before commencing construction	ECO	Monthly	Access road inspection

5.5 Fencing and Gate Installation

Management Outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Use existing gates provided to gain access to all parts of the area authorised for development, where possible; ▪ Existing and new gates to be recorded and documented in accordance with ***Section 4.9: Photographic Record***; ▪ All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; ▪ At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner; ▪ Care must be taken that the gates must be so erected that there is a gap of no more than 100mm between the bottom of the gate and the ground (not applicable); ▪ Where gates are installed in jackal-proof fencing, a suitable reinforced concrete sill must be provided beneath the gate (not applicable); ▪ Original tension must be maintained in the fence wires; ▪ All gates installed in electrified fencing must be re-electrified; ▪ All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities; ▪ Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas where applicable; ▪ Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the landowner. ▪ All fencing must be developed of high-quality material bearing the SABS mark; ▪ The use of razor wire as fencing must be avoided;	Contractor	Controlled access to working areas	dEO & ECO	Monthly	Site inspection

Management Outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times; ▪ On completion of the development phase all temporary fences are to be removed; and ▪ -The Contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely.					

5.6 Water Supply Management

Management Outcome: Undertake responsible water usage.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All abstraction points or boreholes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis (not applicable); ▪ The Contractor must ensure the following: a) The vehicle abstracting water from a river does not enter or cross it and does not operate from within the river (not applicable); b) No damage occurs to the riverbed or banks and that the abstraction of water does not entail stream diversion activities (not applicable); and c) All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented. ▪ Ensure water conservation is being practiced by: a) Minimising water use during cleaning of equipment; b) Undertaking regular audits of water systems;	Contractor	Water from appropriately licensed sources Environmental awareness training	ECO & dEO	Monthly	Site inspection

Management Outcome: Undertake responsible water usage.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
c) Including a discussion on water usage and conservation during environmental awareness training; and d) The use of grey water is encouraged.					

5.7 Storm and Wastewater Management

Management Outcome: Impacts to the environment caused by stormwater and wastewater discharges during construction are avoided.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Runoff from the cement/ concrete batching areas must be strictly controlled (not applicable); ▪ Contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the Project Manager (not applicable); ▪ All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; ▪ Natural stormwater runoff not contaminated during the development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO; and ▪ Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO.	Contractor, PM & cEO	Method Statement for stormwater and wastewater management	ECO & dEO	Monthly	Site inspection Approved Method Statement

5.8 Solid and Hazardous Waste Management

Management Outcome: Wastes are appropriately stored, handled and safely disposed of at a recognised waste facility.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All measures regarding waste management must be undertaken using an integrated waste management approach; ▪ Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; ▪ A suitably positioned and clearly demarcated waste collection site must be identified and provided; ▪ The waste collection site must be maintained in a clean and orderly manner; ▪ Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; ▪ Staff must be trained in waste segregation; ▪ Bins must be emptied regularly; ▪ General waste produced on-site must be disposed of at registered waste disposal sites/ recycling company; ▪ 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.	Contractor & cEO	General camp house-keeping Provision of bins Awareness training on waste minimisation and re-use	dEO ECO	Weekly Bi-monthly	Provision of waste disposal facilities (bins & skips) Proof of Safe Disposal Certificates

5.9 Protection of Watercourses and Estuaries

Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities;	Contractor & cEO	Method Statement for Working in Watercourses (if applicable)	dEO ECO	Weekly Bi-monthly	Approval and compliance with the Method Statement

Management Outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ In the event of a spill, prompt action must be taken to clear the polluted or affected areas; ▪ Where possible, no development equipment must traverse any seasonal or permanent wetland; ▪ No return flow into the estuaries must be allowed and no disturbance of the Estuarine functional Zone should occur (not applicable); ▪ Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; ▪ There must not be any impact on the long-term morphological dynamics of watercourses or estuaries; ▪ Existing crossing points must be favoured over the creation of new crossings (including temporary access); ▪ When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse; b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to 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 d) 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.					(if applicable)

5.10 Vegetation Clearing

Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
General: ▪ Indigenous vegetation which does not interfere with the 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; ▪ Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; ▪ Permits for removal must be obtained from the Department of Forestry, Fisheries and the Environment (DFFE) prior to the cutting or clearing of the affected species, and they must be filed; ▪ The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; ▪ Trees felled due to construction must be documented and form part of the Environmental Audit Report (applicable only to trees highlighted as significant within the Biodiversity Assessment); ▪ Rivers and watercourses must be kept clear of felled 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, supervision of a registered pest control operator or is appropriately trained; ▪ A daily register must be kept of all relevant details of herbicide usage; ▪ No herbicides must be used in estuaries;	Contractor & cEO	Woking within demarcated areas Invasive Alien Plant (IAP) eradication and control	dEO ECO	Weekly Monthly	Site inspection

Management Outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance with ***Section 5.3: Access Restricted Areas****;* and ▪ Alien invasive vegetation must be removed and disposed of at a recognised waste disposal facility.					

5.11 Protection of Fauna

Management Outcome: Disturbance to fauna is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; ▪ The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme; ▪ 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 adhered to at all times to prevent unnecessary disturbance of birds; ▪ No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas; ▪ No deliberate or intentional killing of fauna is allowed; ▪ In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and ▪ No Threatened or Protected species (ToPs) and/ or protected fauna as listed according NEMBA (Act No. 10 of 2004) and	Contractor & cEO	Awareness training Injuring, capturing, killing of fauna identified on-site must be reported	dEO & ECO	Monthly	Training material related to faunal management

Management Outcome: Disturbance to fauna is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
relevant provincial ordinances may be removed and/ or relocated without appropriate authorisations/ permits.					

5.12 Protection of Heritage Resources

Management Outcome: Impact to heritage resources is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Identify, demarcate and prevent impact to all known sensitive heritage features on-site in accordance with the No-Go procedure in ***Section 5.3: Access Restricted Areas***; ▪ Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; and ▪ 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 & cEO	Working within approved areas for construction	dEO & ECO	Monthly	Site inspection

5.13 Safety of the Public

Management Outcome: All precautions are taken to minimise the risk of injury, harm or complaints.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.;	Contractor	Compilation of Health and Safety Plan	Occupation Health & Safety Officer	Monthly	Health and safety inspections

Management Outcome: All precautions are taken to minimise the risk of injury, harm or complaints.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All unattended open excavations must be adequately fenced or demarcated; ▪ Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; ▪ Ensure structures vulnerable to high winds are secured; and ▪ Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.		Maintain Health and Safety File			Investigation of major accident/ incidents

5.14 Sanitation

Management Outcome: Clean and well-maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Mobile chemical toilets are installed on-site if no other ablution facilities are available; ▪ The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; ▪ Where mobile chemical toilets are required, the following must be ensured: a) Toilets are located no closer than 100m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; d) 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;	Contractor	Provision of ablution facilities during construction Management of facilities	dEO ECO	Weekly Monthly	Proof of servicing and safe disposal

Management Outcome: Clean and well-maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; and ▪ A copy of the waste disposal certificates must be maintained.					

5.15 Prevention of Disease

Management Outcome: All necessary precautions linked to the spread of disease are taken.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Undertake environmentally-friendly pest control in the camp area; ▪ Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; ▪ The Contractor must ensure that information posters on AIDS are displayed in the Contractor camp area; ▪ Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; ▪ Free condoms must be made available to all staff on-site at central points; ▪ Medical support must be made available; and ▪ Provide access to Voluntary HIV Testing and Counselling Services.	Contractor	Compilation of Health and Safety Plan Maintain Health and Safety File	Occupation Health & Safety Officer	Monthly	Health and safety inspections

5.16 Emergency Procedures

Management Outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; ▪ The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; ▪ All staff must be made aware of emergency procedures as part of environmental awareness training; ▪ The relevant local authority must be made aware of a significant fire as soon as it starts; and ▪ In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented ***(Section 5.17: Hazardous Substances)***.	Contractor	ERAP Awareness Training	ECO	Monthly	Approved ERAP & training records

5.17 Hazardous Substances

Management Outcome: Safe storage, handling, use and disposal of hazardous substances.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; ▪ All hazardous substances must be stored in suitable containers as defined in the Method Statement; ▪ Containers must be clearly marked to indicate contents, quantities and safety requirements (as applicable); ▪ All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill/ leak from the stored containers; ▪ Bunded areas to be suitably lined with a SABS approved liner;	Contractor	Method Statement for the handling, storage, use and disposal of hazardous substances	ECO	Monthly	Site inspection of hazardous storage areas and inspection of drip trays and impervious surfaces

Management Outcome: Safe storage, handling, use and disposal of hazardous substances.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; ▪ All hazardous chemicals that will be 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 be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; ▪ The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; ▪ The tanks/ bowsers must be situated 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/ bowsers (110% statutory requirement plus an allowance for rainfall); ▪ The floor of the bund must be sloped, draining to an oil separator; ▪ Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; ▪ All empty externally dirty drums must be stored on a drip tray or within a bunded area; ▪ No unauthorised access into the hazardous substances storage areas must be permitted; ▪ No smoking must be allowed within the vicinity of the hazardous storage areas;					

Management Outcome: Safe storage, handling, use and disposal of hazardous substances.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Adequate fire-fighting equipment must be made available at all hazardous storage areas; ▪ Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used; ▪ An appropriately sized spill kit kept on-site relevant to the scale of the activity (ies) involving the use of hazardous substance must be available at all times; ▪ The responsible operator must have the required training to make use of the spill kit in emergency situations; ▪ An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; and ▪ In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to ***Section 0 Storm and Wastewater Management*** and ***Section 5.8 for Solid and Hazardous Waste Management***.					

5.18 Workshop, Equipment Maintenance and Storage

Management Outcome: Soil, surface water and groundwater contamination is minimized.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; ▪ During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a significant fire as soon as it starts;	Contractor	Method Statement for workshop, equipment maintenance and storage	ECO	Monthly	Site inspection

Management Outcome: Soil, surface water and groundwater contamination is minimized.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Leaking equipment must be repaired immediately or be removed from site to facilitate repair; ▪ Workshop areas must be monitored for oil and fuel spills; ▪ Appropriately sized spill kit kept on-site relevant to the scale of the activity taking place must be available; ▪ The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil/ water separator where maintenance work on vehicles and equipment can be performed; and ▪ Water drainage from the workshop must be contained and managed in accordance with ***Section 0: Storm and Wastewater Management***.					

5.19 Batching Plants

Management Outcome: Minimise spillages and contamination of soil, surface water and groundwater					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Concrete mixing must be carried out on an impermeable surface; ▪ Batching plants areas must be fitted with a containment facility for the collection of 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 away from any water courses, gullies and drains; ▪ A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; ▪ Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licensed disposal facility;	Contractor	Method Statement for batching activities	ECO	Monthly	Site inspection

Management Outcome: Minimise spillages and contamination of soil, surface water and groundwater					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Empty cement bags must be secured with adequate binding material if these will be temporarily stored on-site; ▪ Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to ***Section 5.20: Dust Emissions***); ▪ Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility; and ▪ Temporary fencing must be erected around batching plants in accordance with ***Section 5.5: Fencing and Gate Installation***.					

5.20 Dust Emissions

Management Outcome: Dust prevention measures are applied to minimise the generation of dust.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; ▪ Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be revegetated or stabilised as soon as is practically 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 make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level;	Contractor	Regular dust suppression Maintaining a dust suppression register	dEO ECO	Daily Monthly	Site inspection Dust suppression register Inspection of Complaints Register relating to dust

Management Outcome: Dust prevention measures are applied to minimise the generation of dust.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Where possible, soil stockpiles must be located 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 40km/h along dust roads or 20km/h when traversing unconsolidated and non-vegetated areas; ▪ Straw stabilisation must be applied at a rate of one bale/ 10m² and harrowed into the top 100mm of top material, for all completed earthworks (not applicable); and ▪ For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.					

5.21 Blasting

Management Outcome: Impact to the environment is minimised through a safe blasting practice.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Any blasting activity must be conducted by a suitably licensed blasting contractor; and ▪ Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such activity taking place on-site.	Not applicable				

5.22 Noise

Management Outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ The Contractor must keep 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 must be properly maintained (where applicable); ▪ Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; and ▪ Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.	Contractor	Compliance with SANS 10103 and OHS Act	dEO ECO	Daily Monthly	Inspection of Complaints Register

5.23 Fire Prevention

Management Outcome: Prevention of uncontrollable fires.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Designate smoking areas where the fire hazard could be regarded as insignificant; ▪ Firefighting equipment must be available on all construction and operation vehicles located on-site; ▪ The local Fire Protection Agency (FPA) must be informed of construction activities;	Contractor	Fire Prevention Plan	ECO	Monthly	Compliance with Fire Prevention Plan

Management Outcome: Prevention of uncontrollable fires.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on-site; ▪ Two-way swop of contact details between ECO and FPA.					

5.24 Stockpiling and Stockpile Areas

Management Outcome: Erosion and sedimentation as a result of stockpiling are reduced.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on-site in order to minimise impacts to watercourses, wetlands and water bodies; ▪ All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; ▪ Stockpiles must not exceed 2m in height; ▪ During periods of strong winds and heavy rain, where possible the stockpiles should be covered with appropriate material (e.g. cloth, tarpaulin etc.); and ▪ Where possible, sandbags (or similar) should be placed at the bases of the stockpiled material in order to prevent erosion of the material.	Contractor	Method Statement to be compiled for stockpile management	dEO ECO	Daily Bi-monthly	Site inspection and compliance with Method Statement

5.25 Civil Works

Management Outcome: Impact to the environment minimised during civil works to create the substation terrace.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Where terracing is required, topsoil must be collected and retained for the purpose of re-use later to rehabilitate disturbed areas not covered by yard stone; ▪ Areas to be rehabilitated include terrace embankments and areas outside the high voltage yards; ▪ Where required, all sloped areas must be stabilised to ensure proper rehabilitation is effected 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 strictly; ▪ Rehabilitation of the disturbed areas must be managed in accordance with ***Section 5.34: Landscaping and Rehabilitation***; ▪ All excess spoil generated during terracing activities must be disposed of in an appropriate manner and at a recognised landfill site; and ▪ Spoil can however be used for landscaping purposes and must be covered with a layer of 150mm topsoil for rehabilitation purposes.	Contractor	Method Statement for civil works	dEO ECO	Daily Bi-monthly	Site inspection and compliance with Method Statement

5.26 Excavation of Foundation, Cable Trenching and Drainage Systems

Management Outcome: No environmental degradation occurs as a result of the excavation of foundation, cable trenching and drainage systems.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a recognised disposal site, if not used for backfilling purposes;	Contractor cEO	Method Statement for excavation and	dEO ECO	Daily Monthly	Site inspection

Management Outcome: No environmental degradation occurs as a result of the excavation of foundation, cable trenching and drainage systems.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Spoil can however be used for landscaping purposes and must be covered with a layer of 150mm topsoil for rehabilitation purposes; ▪ Management of equipment for excavation purposes must be undertaken in accordance with ***Section 5.18: Workshop Equipment Maintenance and Storage***; ▪ Hazardous substances spills from equipment must be managed in accordance with ***Section 5.17: Hazardous Substances***. ▪ Batching of cement to be undertaken in accordance with ***Section 5.19: Batching Plants***; and ▪ Residual solid waste must be disposed of in accordance with ***Section 5.8: Solid and Hazardous Waste Management***.		installation of foundations			Approved Method Statement

5.27 Installation of Equipment (circuit breakers, current transformers, isolators, insulators, surge arresters, voltage transformers, earth switches)

Management Outcome: No environmental degradation occurs as a result of assembly and erecting of towers.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Management of dust must be conducted in accordance with ***Section 5.20: Dust Emissions***; ▪ Management of equipment used for installation must be conducted in accordance with ***Section 5.18: Workshop, Equipment Maintenance and Storage***; ▪ Management hazardous substances and any associated spills must be conducted in accordance with ***Section 5.17: Hazardous Substances***; and ▪ Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid Waste and Hazardous Management***.	Contractor cEO	Standard Operating Procedure (SOP) for the installation of equipment	ECO dEO	Bi-monthly	Site inspection Approved SoP

5.28 Steelwork Assembly and Erection

Management Outcome: No environmental degradation occurs as a result of steelwork assembly and erection.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ During assembly, care must be taken to ensure that no wasted/unused materials are left on-site e.g. bolts and nuts. ▪ Emergency repairs due to breakages of equipment must be managed in accordance with ***Section 5.18: Workshop, Equipment Maintenance and Storage*** and ***Section 5.16: Emergency Procedures.***	Contractor cEO	Method Statement for steelwork assembly and erection	dEO ECO	Monthly	Site inspection Approved Method Statement

5.29 Cabling and Stringing

Management Outcome: No environmental degradation occurs as a result of stringing.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with ***Section 5.8: Solid Waste and Hazardous Management***; ▪ Management of equipment used for installation shall be conducted in accordance with ***Section 5.18: Workshop, Equipment Maintenance and Storage***; ▪ Management hazardous substances and any associated spills shall be conducted in accordance with ***Section 5.17: Hazardous Substances***.	Contractor cEO	Method Statement for cabling and stringing	dEO ECO	Monthly	Site inspection Approved Method Statement

5.30 Testing and Commissioning (all equipment testing, earthing system, system integration)

Management Outcome: No environmental degradation occurs as a result of testing and commissioning.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Residual solid waste must be recycled or disposed of in accordance with ***Section 5.8: Solid Waste and Hazardous Management.***	Contractor cEO	SOP for testing and commissioning	dEO ECO	Monthly	Site inspection Approved SOP

5.31 Socio-economic

Management outcome: Socio-economic development is enhanced.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ 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, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers (not applicable).	Contractor	Communication Plan	ECO	Bi-monthly	Site inspection Approved Communication Plan

5.32 Temporary Site Closure

Management Outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in ***Sections 5.17: Management of Hazardous Substances and 5.18: Workshop, Equipment Maintenance and Storage***; ▪ Hazardous storage areas must be well ventilated; ▪ Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; ▪ Emergency and contact details must be displayed; ▪ Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; ▪ 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 any 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 cEO	Method Statement for site closure greater than 5 days	ECO dEO	Bi-monthly	Site inspection Approved Method Statement

5.33 Dismantling of Old Equipment

Management Outcome: Impact to the environment to be minimised during the dismantling, storage and disposal of old equipment commissioning.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All old equipment removed during the project must be stored in such a way as to prevent pollution of the environment; ▪ Oil containing equipment must be stored to prevent leaking or be stored on drip trays; ▪ All scrap steel must be stacked neatly and any disused and broken insulators must be stored in containers; ▪ Once material has been scrapped and the contract has been placed for removal, the disposal Contractor must ensure that any equipment containing pollution causing substances is dismantled and transported in such a way as to prevent spillage and pollution of the environment; ▪ The Contractor must also be equipped to contain and clean up any pollution causing spills; and ▪ Disposal of unusable material must be at a licensed waste disposal site.	Contractor cEO	Method Statement for the dismantling of old equipment	dEO ECO	Monthly	Site inspection Approved Method Statement

5.34 Landscaping and Rehabilitation

Management Outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed to a registered waste site; ▪ All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983;	Contractor cEO	Method Statement for landscaping and rehabilitation	ECO dEO	Monthly	Site inspection Approved Method Statement

Management Outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
▪ All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; ▪ Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition; ▪ Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners (not applicable); ▪ Rehabilitation of tower sites and access roads outside of farmland; ▪ Indigenous species must be used for with species and/ grasses to where it compliments or approximates the original condition; ▪ Stockpiled topsoil must be used for rehabilitation (refer to ***Section 5.24: Stockpiling and Stockpiled Areas***); ▪ Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; ▪ Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; ▪ Subsoil must be ripped before topsoil is placed; ▪ The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; ▪ Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is effected and erosion is controlled; ▪ Sloped areas 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 strictly; ▪ Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. Where required, re-vegetation including hydro-seeding, can be enhanced using					

Management Outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
a vegetation seed mixture as described below. A mixture of seeds can be used provided the mixture is carefully selected to ensure the following: a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; e) The final product must not cause an ecological imbalance in the area.					

6 ACCESS TO THE GENERIC EMPr

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with regulation 26 (h) of the Environmental Impact Assessment Regulations, 2014 as amended.

PART B: SECTION 2

7 SITE-SPECIFIC INFORMATION AND DECLARATION

7.1 Sub-section 1: Contact Details and Description of the Project

7.1.1 Details of the applicant:

Name of applicant: **Willem den Heijer**
E-mail address: **Willem.denheijer@samancorcr.com**
Tel No: **011 245 1000**
Fax No: **Not Applicable**
Postal Address:
Physical Address: **Block A, Cullinan Place, Cullinan Close, Morningside, Sandton, 2196**

7.1.2 Details and expertise of the EAP:

Name of applicant: **Prashika Reddy (Royal HaskoningDHV)**
E-mail address: **prashika.reddy@rhdhv.com**
Tel No: **087 352 1577**
Fax No: **Not applicable**
The expertise of the EAP (Curriculum Vitae included): **Prashika Reddy is a Senior Environmental Scientist with 19 years of experience in various environmental fields, including EIAs, EMPrs, PPP, and environmental monitoring and audits. She is/ has been part of numerous multi-faceted large-scale projects, including the establishment of linear developments (roads and powerlines), industrial plants, electricity generation plants, mixed-use developments, and mining projects. She is a Professional Natural Scientist (400133/10) with the South African Council for Natural Scientific Professions and a registered EAP with EAPASA.**

7.1.3 Project name:

100MWp Photovoltaic Plant associated with the Tubatse Ferrochrome Smelter, Steelpoort, Fetakgomo Tubatse Local Municipality

7.1.4 Description of the project:

Samancor Chrome Ltd's core business is the mining and smelting of chrome ore. With an annual production capacity of 2.4 million tons of ferrochrome, Samancor Chrome is one of the largest integrated ferrochrome producers in the world. The ferrochrome produced is used in areas of the stainless-steel smelting process. Samancor Chrome has been, and continues to be, a major player in ferrochromium production. The company's total chromite resources exceed 900 million tons and are expected to support current mining activity for well over 100 years at the current rate of extraction. Some ores and concentrates are exported, but main allotments are destined for conversion into ferrochrome at the alloy plants.

The Tubatse Ferrochrome (TFC) Smelter was initially built as a three-furnace operation in 1975 as a joint venture between Gencor Ltd and Union Carbide Inc. (USA). In the same year, the Union Carbide Inc. shareholding was taken over by Samancor Chrome, and in 1989, Samancor Chrome acquired the Gencor Ltd shareholding. During the years 1989 – 1990, the plant was expanded to five furnaces with the sixth furnace being built in 1996. The plant is situated in Steelpoort, Limpopo Province and is in close proximity

to the Eastern Chrome Mines. The core business of the operation is the production of charge chrome using six Submerged-Arc Furnaces, one metal recovery plant, and a Pellet and Sintering Plant.

The climate change concerns and rising electricity tariffs in South Africa, combined with the increasingly severe load shedding patterns experienced across the country, has a negative impact on the production and revenue of Samancor Chrome's business. This together with the recent announcement by the President of South Africa to allow for an increase to 100MW embedded generation threshold has motivated Samancor Chrome to consider renewable energy generation at their smelter plants. Implementing solar Photovoltaic (PV) generation will result in improved availability of supply and reduced utility bills as well as going 'green' in terms of environmental considerations.

Samancor Chrome is therefore proposing the development of a 100 Megawatt peak (MWp) Photovoltaic (PV) Plant over 5 potential sites adjacent to the TFC Smelter in Steelpoort, Fetakgomo Tubatse Local Municipality (FGTM).

Samancor Chrome invited Independent Power Producers (IPPs) to respond to a Request for Proposal (RFP) in March 2021, to finance, develop, construct, own, operate and maintain the PV plant, in order to supply electricity to Samancor Chrome's TFC Smelter. It is Samancor Chrome's intent to sign a Power Purchase Agreement (PPA) with the successful IPP for a minimum of 20 years.

7.1.5 Project location:

The project area is located on opposite sides of the R555 and to the south of the Steelpoort River, Limpopo Province. The project area falls within the Sekhukhune District Municipality (SDM) and the FGTM within Ward 31. Small settlements of Pelaneng (located to the north), Stocking, Matholeng and Mohlakwana (located to the east) exist within the project area. The town of Steelpoort is located to the east of the TFC Smelter.

The Tubatse East- and West Substations are located on Goudmyn 337KT Portion 0. The solar fields connect to the Tubatse East- and West Substations by mean of power corridors to evacuate the AC power. The power corridor will comprise of overhead lines or underground cables, or a combination thereof, at a voltage level of 33kV.

The proposed connections onto the Tubatse East- and West Plant Substations will comprise of 33kV indoor switchgear blocks located next to these substations. The purpose of these blocks would be to collect the feeders from the solar fields and combine them into one or two feeders to be connected onto the existing 33kV substation infrastructure.

The substation coordinates are provided in Table 2.

Table 2: Project Coordinates

Component	Coordinates
Tubatse West 33kV switchgear	A: 24°44'39.51"S; 30°11'36.88"E B: 24°44'39.75"S; 30°11'37.03"E C: 24°44'40.03"S; 30°11'36.53"E D: 24°44'39.80"S; 30°11'36.39"E
Tubatse East 33kV switchgear	A: 24°44'30.15"S; 30°11'53.24"E B: 24°44'30.37"S; 30°11'53.41"E C: 24°44'30.62"S; 30°11'52.90"E D: 24°44'30.40"S; 30°11'52.75"E

7.2 Sub-section 2: Development Footprint Site Map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. Once the web-based screening tool identified in regulation 16(1) (v) of the Environmental Impact Assessment Regulations, 2014 is available, the sensitivity map must be prepared from this system. The map indicates areas/ features of sensitivity based on the assessment findings and illustrated according to four tiers, Very High, High, Medium, or Low. The sensitivity map shall also identify the nature of each sensitive feature, e.g., raptor nest, threatened plant species, archaeological site, etc. Sensitivity maps shall identify features within the planned working area and any known sensitive features in the surrounding landscape. The overhead transmission and distribution profile shall be illustrated at an appropriate resolution to enable fine-scale interrogation. It is recommended that <20 m of overhead transmission and distribution length is illustrated per page in A3 landscape format. Where considered appropriate, photographs of sensitive features in the context of tower positions shall be used.

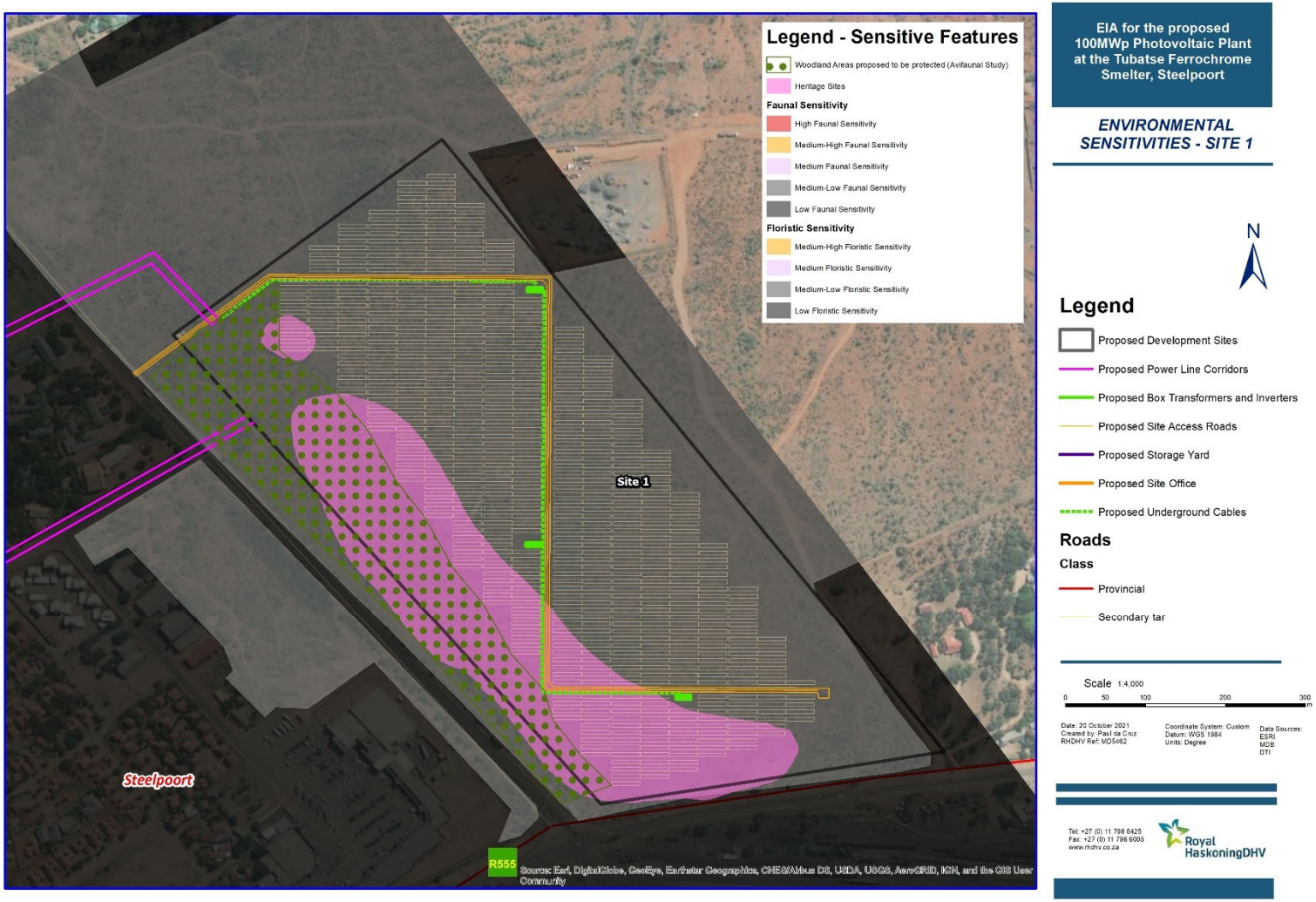

Figure 1: Sensitivity Map – Site 1

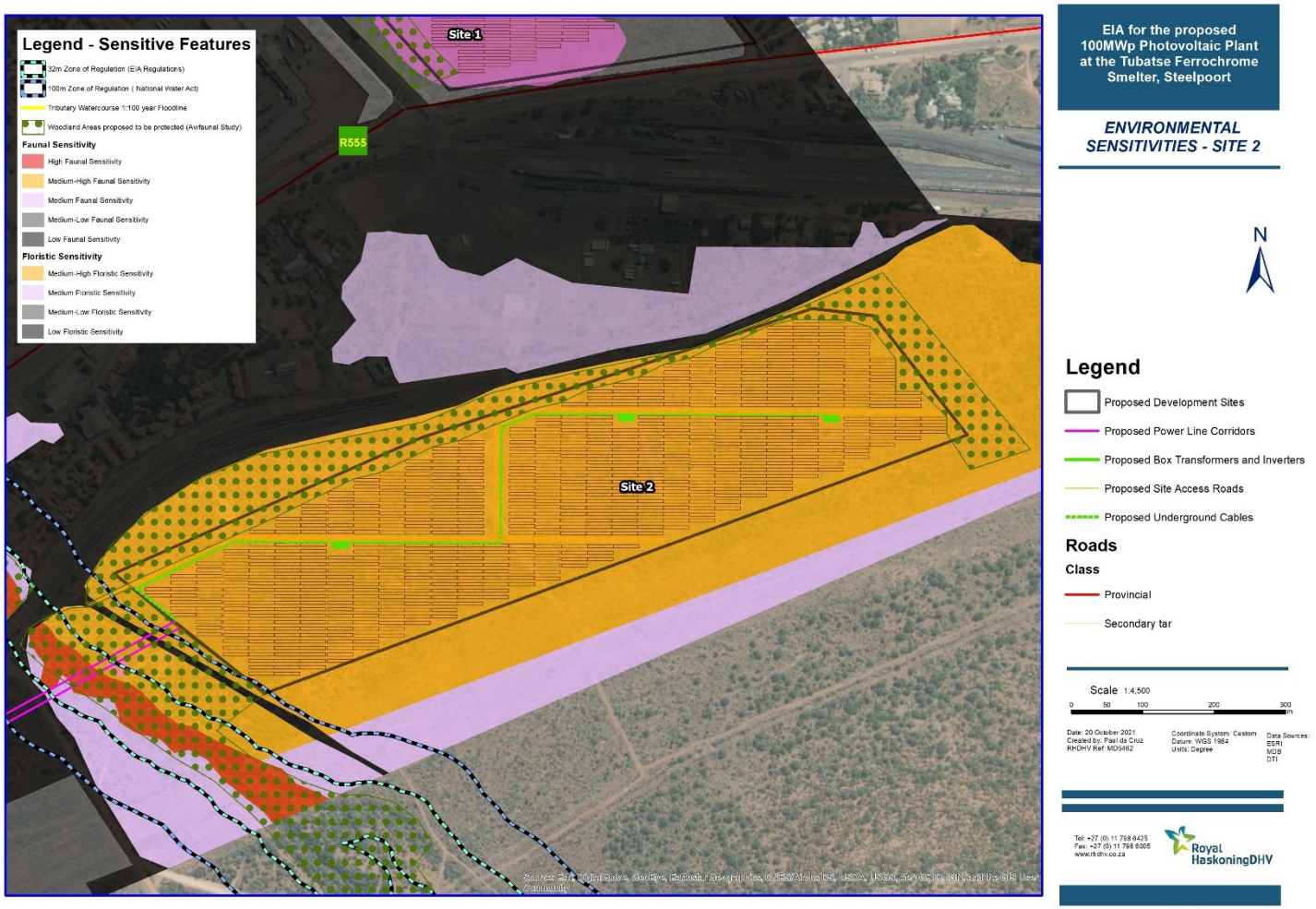

Figure 2: Sensitivity Map – Site 2

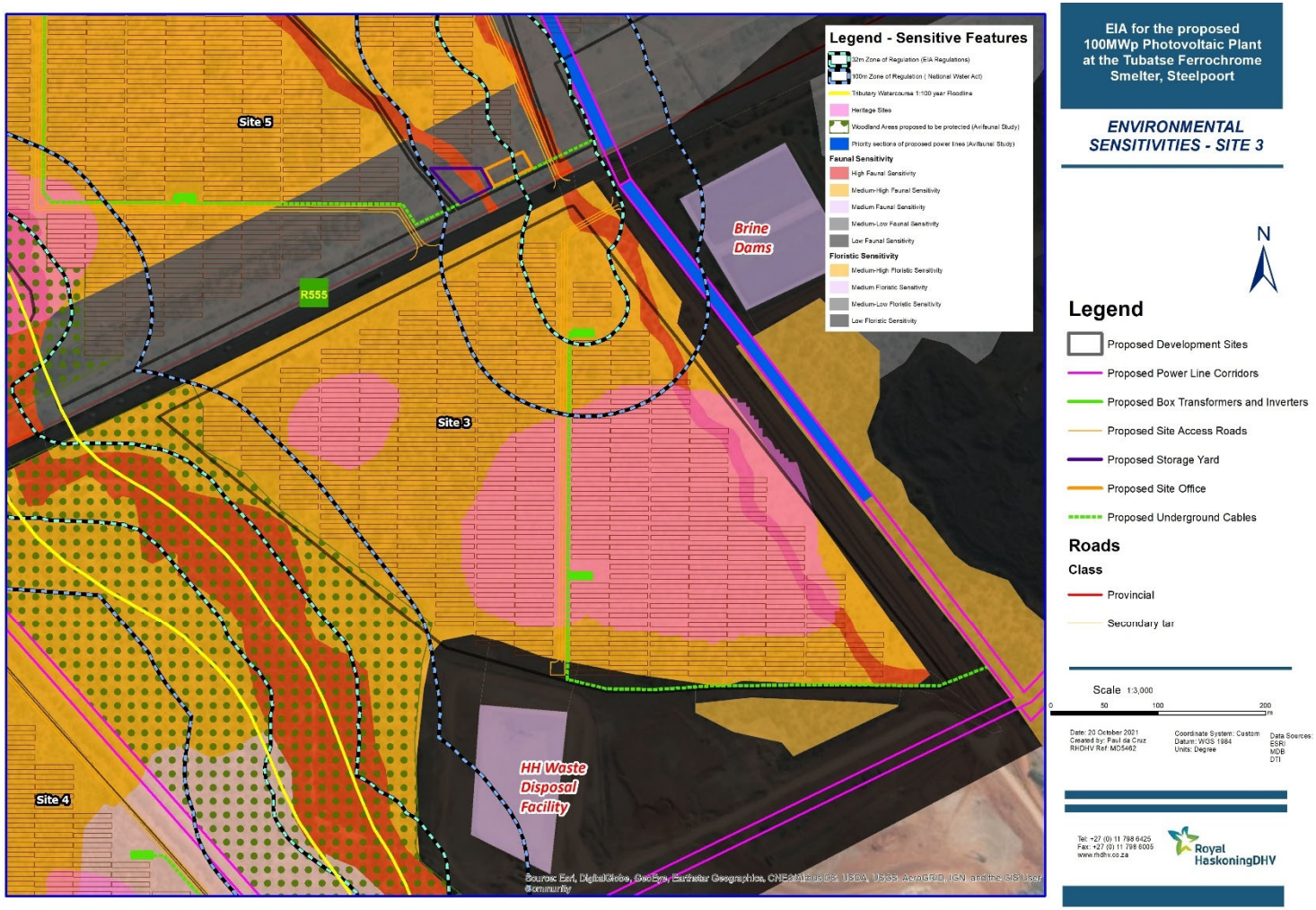

Figure 3: Sensitivity Map – Site 3

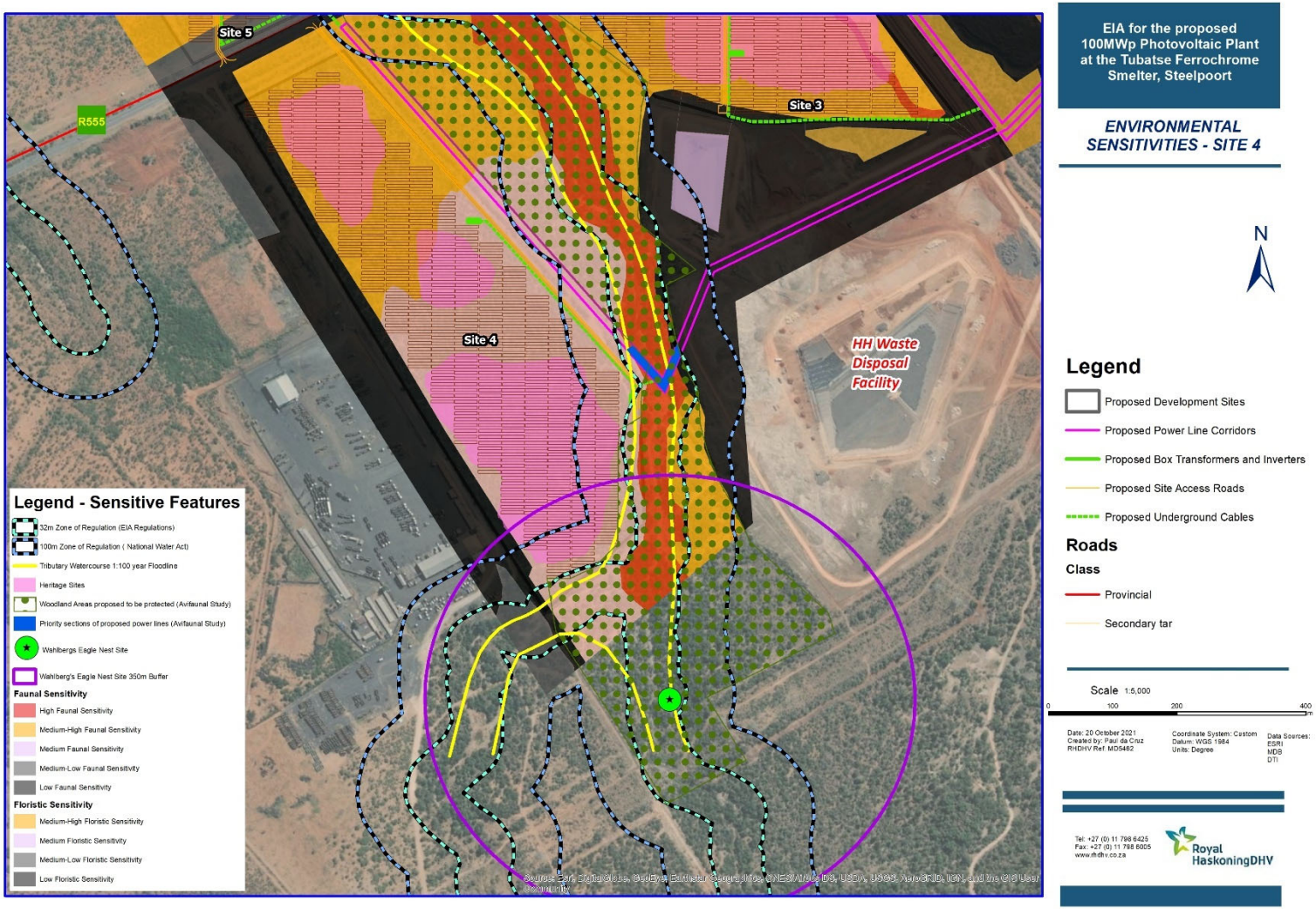

Figure 4: Sensitivity Map – Site 4

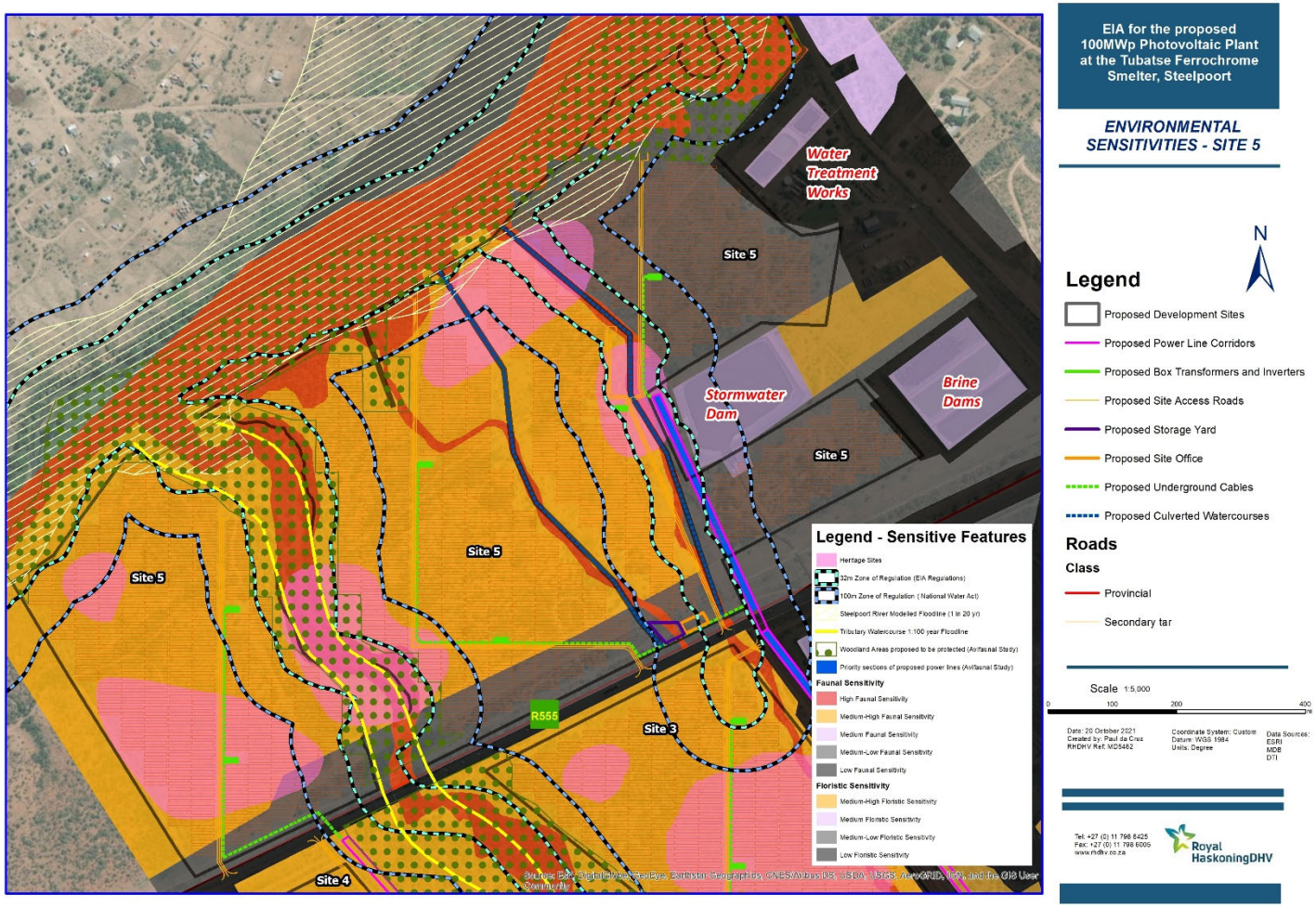

Figure 5: Sensitivity Map – Site 5

7.3 Sub-section 3: Declaration

The proponent or applicant or holder of EA affirms that they will abide and comply with the prescribed impact management outcomes and actions as stipulated in part B section 1 of the generic EMPr and have the understanding that the impact management outcomes and actions are legally binding.

Signature Proponent/applicant/ holder of EA Date:

TO BE SIGNED IN THE FINAL SUBMISSION

PART C

8 SITE-SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/ attributes are present on the site which require more specific impact management outcomes and actions not included in the pre-approved generic EMPr template to manage impacts, those impact management outcomes and actions must be included in this section. These specific management controls must be referenced spatially and must include impact management outcomes and actions. The management controls including impact management outcomes and actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional controls that are necessary. The information in this section must be prepared by an EAP and the name and expertise of the EAP, including the curriculum vitae are to be included.

This section will not be required should the site contain no specific environmental sensitivities or attributes. If Part C is applicable to the site, it is required to be submitted to the competent authority for approval prior to commencement of the activity. Once approved, Part C forms part of the EMPr for the site and is legally binding.

8.1 Protection of Avifauna

Management Outcome: Disturbance to avifauna is minimised.					
Impact Management Actions	**Implementation**		**Monitoring**		
	Responsible Person/s	**Method of Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
Avifauna: ▪ Apply appropriate deterrent devices to prevent birds from nesting on important structures. ▪ Monitor any nest-building activities and remove/ trim nests that are a risk (fire risk or affecting the operations of the solar facilities) with the consent of the local Conservation Department. Trimming should only be conducted during the non-breeding season. ▪ Apply nest boxes for owls along the perimeter of the facilities to assist with rodent control. ▪ Implement a pre-construction and post-construction (operations) bird monitoring regime.	Avifaunal Specialist	Bird Monitoring Programme	ECO dEO	Monthly	Bird Monitoring Reports

Appendix J:
Impact Ratings

1 IMPACT ASSESSMENT

1.1 Agricultural Potential

Table 1: Soils and agricultural potential impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Soil degradation leading to loss of agricultural potential **Impacts:** ▪ Erosion and topsoil loss ▪ Contamination of soils through hydrocarbon spillages	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-10)**	▪ Design and implement an effective system of stormwater run-off control, where it is required - that is at any points where runoff water might accumulate. The system must effectively collect and safely disseminate any run-off water from all accumulation points and it must prevent any potential down slope erosion. ▪ Maintain where possible all vegetation cover and facilitate re-vegetation of denuded areas throughout the sites, to stabilize disturbed soil against erosion. ▪ If an activity will mechanically disturb the soil below surface in any way, then any available topsoil should first be stripped from the entire surface to be disturbed and stockpiled for re-spreading during rehabilitation. During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface. ▪ Depending on the nature and extent of the spill, Spillages must be cleaned up immediately and contaminated soil must either be remediated in situ or disposed of at an appropriately licenced landfill site.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Improbable (-1) **Significance: Low (-5)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Operations	**Aspect:** Protection of soils resources during operations **Impact:** Erosion	**Duration:** Medium-term (-3) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-12)**	▪ Maintain the stormwater runoff control system. ▪ Monitor erosion and remedy the stormwater control system in the event of any erosion occurring.	**Duration:** Medium-term (-3) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Improbable (-1) **Significance: Low (-6)**
Decommission/ Closure & Rehab	**Aspect:** Protection of soil resources during decommissioning **Impact:** ▪ Erosion and topsoil loss ▪ Contamination of soil through hydrocarbon spillages	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-10)**	▪ During rehabilitation, the stockpiled topsoil must be evenly spread over the entire disturbed surface. ▪ *Refer to mitigation measures stipulated in the construction phase.*	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Improbable (-1) **Significance: Low (-5)**
Cumulative	The potential cumulative agricultural impact of importance is a regional loss (including by degradation) of agricultural land, with a consequent decrease in agricultural production. As identified in the preceding sections, this proposed development has zero impact on future agricultural production, as long as it does not degrade the agricultural resource base so that future agricultural production is compromised. If the project contributes zero impact to the cumulative impact, then its cumulative impact must be assessed as insignificant. The proposed development is therefore acceptable in terms of cumulative impact.			

1.2 Hydrology

Table 2: Hydrological impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Earthworks **Impacts:** Disturbing the vadose zone during soil excavations/ activities	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Low (-20)**	▪ Only excavate and clear areas applicable to the project area. ▪ Exposed soils to be protected using a suitable covering. ▪ Existing roads should be used as far as practical to gain access to the site and crossing the streams in areas where no existing crossing is apparent should be unnecessary, but if it is essential crossings should be made at right angles.	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Negligible (0) **Probability:** Definite (-5) **Significance: Low (-10)**
Construction	**Aspect:** Earthworks **Impacts:** Surface water contamination from the following activities: ▪ Erosion and sedimentation of watercourses due to unforeseen circumstances (i.e. bad weather) ▪ Alteration of natural drainage lines which may lead to ponding or increased runoff patterns (i.e. may cause stagnant levels or increase in erosion	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Low (-20)**	▪ Construct silt traps at the entrances to the SWMP infrastructure and at the outlet points. These silt traps will be in position for the duration of construction and will serve to trap the sediment. ▪ Sediment deposits should regularly be cleared and recompacted into the site or onto the stockpiles of material. ▪ Cover soil stockpiles with a temporary liner to prevent contamination. ▪ Ongoing inspection and maintenance of drainage management measures should be carried out throughout the construction period.	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Negligible (0) **Probability:** Definite (-5) **Significance: Low (-10)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Plant on site during construction **Impacts:** ▪ Spillage of fuels and chemicals and the movement of construction vehicles and equipment	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Low (-20)**	▪ Clean up spillages immediately. ▪ Keep chemicals in bunded areas. ▪ Keep vehicles and equipment clean.	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Negligible (0) **Probability:** Definite (-5) **Significance: Low (-10)**
Construction	**Aspect:** Site clearing and preparation **Impact:** Increased runoff altering flow regimes of receiving watercourses due to vegetation removal and compacting of soil	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Low (-20)**	▪ Vegetation clearing must be limited to what is essential. ▪ Compact the site footprint only, minimising working area. ▪ Divert stormwater away from construction activities by the use of temporary berms. The topography of the site is favourable in that it is situated on a slope so runoff will naturally drain away from the site, but diversion/protection berms can be constructed around concrete mixing areas and stockpiles to prevent rainwater from running through them and becoming contaminated.	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Negligible (0) **Probability:** Definite (-5) **Significance: Low (-10**
Operations	**Aspect:** Runoff **Impact:** Increased runoff due to compacted surfaces from the proposed site onto surrounding soils may cause higher velocities and frequency of occurrence and sediment transport to the nearby streams	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability: Highly Probable** (-4) **Significance: Moderate (-32)**	▪ Release structures for stormwater runoff from the site should dissipate energy and disperse flow to ensure minimal impact to the receiving environment.	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-16)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Operations	**Aspect:** Net result of earthworks and development **Impact:** Potential sedimentation several months after the site has been constructed.	**Duration:** Medium-term (-3) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Moderate (-35)**	▪ Release structures for stormwater runoff from the site should incorporate silt traps to allow for settlement of sediments. ▪ Silt traps must be regularly cleaned.	**Duration:** Medium-term (-3) **Scale:** Local (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-12)**
Operations	**Aspect:** Site operations **Impact:** Water quality impacts due to chemical spills, vehicle pollutants, fuel and oil spillages and leaks	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Highly Probable (-4) **Significance: Low (-28)**	▪ Implementation of a SWMP to keep clean water away from dirty areas. ▪ Demarcated dirty area to be limited to roads, parking areas and chemical storage areas. ▪ Spills to be cleaned up immediately. ▪ Vehicles and equipment to be regularly maintained and cleaned.	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-14)**
Operations	**Aspect:** Catchment modification **Impact:** Erosion due to change in topography, land use and vegetation removal	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability:** Highly Probable (-4) **Significance: Moderate (-32)**	▪ Design the SWMP to ensure that the velocities of stormwater runoff flow are kept to a minimum. ▪ Design release structures to dissipate stream power. ▪ Include erosion protection measures such as rip rap in release structures.	**Duration:** Long-term (-4) **Scale: Site** (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-14)**

1.3 Freshwater

Table 3: Freshwater impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Removal of vegetation and associated disturbances to soils (outside of the Steelpoort River and non-perennial rivers and associated floodlines, but within the 32m and 100m ZOR) **Impacts:** ▪ Earthworks could be potential sources of sediment, which may be transported as runoff into the downstream watercourse areas ▪ Exposure of soils, leading to increased runoff, and erosion, and thus increased sedimentation of the watercourses ▪ Increased sedimentation of the watercourses, leading to smothering of vegetation associated in the watercourses ▪ Proliferation of alien and/ or invasive vegetation as a result of disturbances	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-36)**	▪ During construction activities associated with surface infrastructure within close proximity to a watercourse, regular spraying of non-potable water or the use of chemical dust suppressants must be implemented to reduce dust and to ensure no smothering of vegetation within the watercourses occurs from excessive dust settling. ▪ The watercourses must be considered as no-go areas. No construction vehicles, or construction personnel or vehicles may traverse through these watercourses. ▪ Contractor laydown areas, and material storage facilities must remain outside of the 32m ZoR. ▪ All vehicle re-fuelling must take place outside of the 32m ZoR. ▪ No vegetation may be removed from the 32m ZoR surrounding the watercourse where no infrastructure is planned within 32m thereof, as this provides a natural buffer zone around the watercourses which disperse surface runoff into the watercourses, and thus prevents sedimentation and erosion thereof. ▪ Installation of appropriately sized silt traps and attenuation facilities in the correct locations to minimize sediment-laden runoff from entering the Steelpoort River.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-14)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Removal of vegetation and associated disturbances to soils relating to the construction of new roads and installation of underground cables traversing through watercourses **Impacts:** ▪ Earthworks could be potential sources of sediment, which may be transported as runoff into the downstream watercourse areas ▪ Exposure of soils, leading to increased runoff, and erosion, and thus increased sedimentation of the watercourses ▪ Increased sedimentation of the watercourses, leading to smothering of vegetation associated in the watercourses ▪ Proliferation of alien and/ or invasive vegetation as a result of disturbances	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Low (-27)**	▪ It is imperative that all construction works be undertaken during the dry, winter months when the flow is very low in the watercourses, and no diversion of flow would be necessary. ▪ The reaches of the watercourses where no activities are planned to occur must be considered No-Go areas. These No-Go areas can be marked at a maximum distance of 5m upstream and downstream of the proposed road crossing. This 5m buffer area would allow for construction personnel, vehicles (if applicable) to enter the watercourse crossing where the road is proposed to be constructed. ▪ Contractor laydown areas, vehicle re-fuelling areas and material storage facilities to remain outside of the watercourses and their associated 32m ZoR. ▪ The removed vegetation must be stockpiled outside of the delineated boundary of the watercourse. The footprint areas of these stockpiles should be kept to a minimum, and may not exceed a height of 2m. Should the vegetation not be suitable for reinstatement after the construction phase or be alien/ invasive vegetation species, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-14)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Earthworks relating to foundations and trenches, backfilling of excavated and disturbed areas and miscellaneous activities by construction personnel (outside of the Steelpoort River and non-perennial rivers and associated floodlines, but within the 32m and 100m ZOR) **Impacts:** ▪ Altered runoff patterns within the local catchment of the watercourses, potentially leading to increased erosion and sedimentation of the watercourses ▪ Potential impacts on the water quality of surface runoff (when present) which may potentially enter the watercourses ▪ Potential of backfill material to enter the watercourses, increasing the sediment load of the watercourses	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-36)**	With regards to ground-breaking activities outside the 32m NEMA ZoR: ▪ During excavation activities, the topsoil and vegetation should be stockpiled separately from other material outside of the 32m NEMA ZoR. ▪ All exposed soils must be protected for the duration of the construction phase to prevent potential erosion and sedimentation of the watercourses. ▪ Construction of the proposed surface infrastructure may result in disturbance to the natural buffer zone surrounding the watercourses which may result in the reduction of surface roughness. This can be mitigated by ensuring that no concentrated runoff from the surface infrastructure construction area enters the watercourses. This can be achieved by installing silt traps or placing haybales down gradient of the construction footprint to ensure no sediment-laden or concentrated runoff generates from the construction footprint. ▪ It is highly recommended that an alien vegetation management plan be compiled during the planning phase and implemented concurrently with the commencement of construction. ▪ Installation of appropriately sized silt traps and attenuation facilities in the correct locations to minimize sediment laden runoff from entering the Steelpoort River. ▪ Stockpile material should be used as backfill material. All excavated areas should be backfilled to the natural ground level with excavated material.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-14)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction of new road crossings and trenching through the watercourses (impact on the Steelpoort River) **Impact:** ▪ Earthworks could be potential sources of sediment, which may be transported as runoff into the downstream reach of the watercourse. ▪ Exposure of soils, leading to increased runoff, and erosion, and thus increased sedimentation of the downstream reach of the watercourse ▪ Increased sedimentation of the watercourses, leading to smothering of vegetation associated in the watercourses ▪ Proliferation of alien and/ or invasive vegetation as a result of disturbances	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Moderate (-30)**	▪ During the construction of internal roads and associate cable installation that may potentially traverse watercourses, a buffer of no more than 5m on either side of the proposed road reserve through the watercourses may be impacted. This area must be cordoned off, and no vehicles or personnel are permitted outside of the authorised construction area. ▪ Material to be used (gravel) as part of the road construction must be stockpiled outside the 32m NEMA ZoR of the watercourses to prevent sedimentation thereof and to avoid any other vegetation to be impacted by the construction activities. These stockpiles may not exceed a height of 2m and should be protected from wind using covers. ▪ All alien and invasive vegetation should be removed. All material must be disposed of at a registered garden refuse site and may not be burned or mulched on site.	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Low (-2) **Probability:** Low (-2) **Significance: Low (-12)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction of new road crossings and trenching through the watercourses (direct impact on the drainage lines) **Impact:** ▪ *Refer to impacts included above for the construction of new road crossings and trenching through the watercourses (impact on the Steelpoort River)*	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-48)**	▪ *Refer to the mitigation measures proposed for the construction of new road crossings and trenching through the watercourses associated with the impact on the Steelpoort River above.*	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Moderate (-30)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Canalisation of two ephemeral drainage lines located in Site 5 (impact on the Steelpoort River) **Impact:** ▪ Disturbances of soils leading to increased alien vegetation proliferation within the terrestrial buffer zone surrounding the watercourse, with the potential to affect the watercourse habitat ▪ Altered runoff patterns within the local catchment of the watercourses, potentially leading to increased erosion and sedimentation of the watercourses ▪ Potential impacts on the water quality of surface runoff (when present) which may potentially enter the watercourses and contamination of soils due to concrete being cast	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-48)**	▪ It is imperative that all construction works be undertaken during the dry winter months. ▪ Erosion control measures should be installed. ▪ No mixed concrete may be deposited outside of the designated construction footprint. ▪ Installation of appropriately sized silt traps and attenuation facilities in the correct locations to minimize sediment-laden runoff from entering the Steelpoort River. ▪ The stormwater outlet should be constructed from energy dissipating structures (such as reno mattresses) to slow down the velocity of water inflow to the Steelpoort River. ▪ Adequate stormwater management plan to be incorporated into the design. ▪ Release of the stormwater into the riparian area of the Steelpoort River must not result in further erosion, sedimentation and bank incision.	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-20)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Canalisation of two ephemeral drainage lines located in Site 5 (direct impact on the drainage lines) **Impact:** ▪ *Refer to impacts included above for the canalisation of two ephemeral drainage lines located in Site 5 (impact on the Steelpoort River)*	**Duration: Medium**-term (-3) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-52)**	▪ It is recommended that these drainage lines are not canalised unless it is absolutely unavoidable. ▪ Use soft engineering techniques (swales and other attenuation devises such as cobble beds) must be used to appropriately manage water in the landscape. ▪ It is imperative that all construction works be undertaken during the dry winter months. ▪ Erosion control measures must be installed. ▪ No mixed concrete may be deposited outside of the designated construction footprint.	**Duration:** Medium-term (-3) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Moderate (-33)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Operations	**Aspect:** Operation and maintenance of the surface infrastructure outside the Steelpoort River and non-perennial rivers and associated floodlines (but within the 32m and 100m zones of regulation) **Impact:** ▪ Disturbance to soils and ongoing erosion as a result of periodic maintenance activities ▪ Altered water quality (if surface water is present) as a result of increased availability of pollutants	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** High (-4) **Significance: Moderate (-36)**	▪ No indiscriminate driving through the watercourses may be permitted during standard operational activities or maintenance activities. Use must be made of the existing watercourse crossings only. ▪ Ensure that routine inspections and monitoring of any instream infrastructure are undertaken to monitor the establishment of indigenous vegetation and the presence of any alien or invasive plant species. ▪ The surface infrastructure areas must be inspected to ensure that no concentrated runoff from these areas forms erosion gullies and eventually flow into the watercourses. Should this be noted, these gullies/ preferential flow paths must be infilled with in situ material and appropriately revegetated. ▪ Monitoring for the establishment for alien and invasive vegetation species must be undertaken, specifically at the road crossings and surface infrastructures. Should alien and invasive plant species be identified, they must be removed and disposed of as per an alien and invasive species control plan and the area must be revegetated with suitable indigenous vegetation.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Medium (-3) **Significance: Low (-21)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
	Aspect: Operation and maintenance of roads traversing watercourses **Impact:** ▪ Concentrated runoff from the road crossing leading to erosion and subsequent sedimentation of the watercourses (increase in the sediment load) and turbulent flows when surface water is present ▪ Higher flood peaks into the watercourses due to reduced surface roughness in the watercourses	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Low (-27)**	▪ Routine maintenance of the roads must be undertaken to ensure that no concentration of flow and subsequent erosion occurs due to the road crossings. ▪ Stormwater runoff from the road crossings should be monitored (by the Environmental Officer), so it does not result in erosion of the watercourses. ▪ Stormwater should be allowed to diffusely spread across the landscape, by ensuring adequate surface roughness in the watercourse (through vegetation and rocky areas). ▪ Maintenance vehicles must make use of dedicated access roads and no indiscriminate movement in the watercourses may be permitted. ▪ During periodic maintenance activities of the roads, monitoring for erosion should be undertaken. ▪ Should erosion be noted that was caused by the road crossings the area must be rehabilitated by infilling the erosion gully and revegetation thereof with suitable indigenous vegetation.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-14)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Decommission/ Closure & Rehab	**Aspect:** Removal of all surface infrastructure from the study area **Impact:** ▪ Disturbance of soil and established vegetation in the operational area	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-36)**	▪ All surface infrastructure within the watercourses and that within its 100m ZoR must be decommissioned. ▪ High flood peaks from the decommissioning footprint areas can be mitigated by ensuring that no concentrated runoff from the surface infrastructure area and subsequent cleared area enters the watercourses. The velocity of surface water flow from these areas must be reduced by entering that the vegetation in the buffer area surrounding the watercourses are intact or by the strategic placement of silt traps of haybales as a means to obstruct flow but still allow flow to percolate at a reduced velocity and encourages a diffuse flow pattern. ▪ Areas where surface infrastructure have been decommissioned and removed must be suitably compacted and revegetated to ensure that no erosion occurs which may contribute to the sediment load of the watercourses. ▪ Should erosion gullies be noted, these areas must be rehabilitated by infilling them with suitable soil and ensuring the area is vegetated. ▪ Should road crossings be decommissioned, road footprint area in the watercourse must be levelled to the same level and shape as that of the upstream and downstream reaches. This will ensure a continuous bed level and prevent any concentration of surface flow from occurring. ▪ All bare areas in the study area, specifically where vegetation was initially cleared for surface infrastructure components) must be ripped and be revegetated within suitable indigenous vegetation species.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-14)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Cumulative	▪ The soils of this area are particularly prone to erosion. With site clearing for the PV arrays there is a risk of reduced surface roughness, which will increase the risk of erosion and sedimentation of the non-perennial watercourses and the Steelpoort River. ▪ Alterations to stormwater runoff within the area, altering the hydrological processes of the systems and increased sedimentation. ▪ Sediment-laden stormwater runoff entering the Steelpoort River, leading to smothering of biota and potentially altering surface water quality is a potential impact that might occur during the operational phase of the PV Plant. ▪ Proliferation of alien and weed species in disturbed areas will lead to altered vegetation communities within the riparian zone and adjacent areas.			

1.4 Biodiversity

Table 4: Botanical impact assessment (Site 1)

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Impacts on/ losses of conservation important and protected plant species (individuals, stands, populations) as well as habitat that is associated with plants of conservation importance	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Highly Probable (-4) **Significance: Moderate (-40)**	▪ Prior to site clearance, a detailed 'walkthrough' must be conducted of the proposed site to ascertain the number, abundance and physical conditions of all protected tree species to assist with permit applications (DFFE). ▪ Prior to site clearance, a detailed 'walkthrough' must be conducted of the proposed site to ascertain the number, abundance and physical conditions of all protected plant to assist with permit applications (LDEDET). ▪ Develop and execute a Search and Rescue operation for certain plants/ trees as per recommendations from the Final Walkthrough Report. These plants should be relocated to a secure, suitable, and appropriate location, taking care to duplicate existing habitat conditions as far as possible. It should be noted that the transportation and relocation process of protected plant species is also subject to permitting requirements; this process should be guided by the Environmental Officer and executed by a suitable ecologist.	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-20)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Losses, and deterioration, of natural and sensitive habitat types, including essential habitat refugia, atypical and unique/ restricted habitat types	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Medium (-3) **Significance: Moderate (-30)**	▪ The extent of disturbance must be limited to the extent of the construction footprint. No areas outside the construction footprint must be cleared unless authorised. ▪ Any Contractors found working inside the No-Go/ Access restricted areas (areas outside the working servitude) must be issued a penalty as per the penalty system setup for the project. ▪ Unauthorised stockpiling, dumping or storage of equipment, material or waste must be strictly prohibited in identified No-Go/ Access restricted areas. ▪ The use of locally indigenous plant species for landscaping purposes is strongly recommended. Under no circumstances shall exotic and invasive plants be used for landscaping purposes. ▪ Rehabilitation of areas where construction activities have been finalised, must be prioritised.	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Improbable (-1) **Significance: Low (-10)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Depletion of local floristic diversity and loss of rare species or flora communities	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Medium (-3) **Significance: Moderate (-30)**	▪ Develop and implement a biodiversity monitoring programme to establish long-term trends of floristic and faunal diversity patterns and the latent and immediate effects of the project on these receiving environments.	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-20)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Deterioration and changes to untransformed habitat in the surrounds, with specific reference to sensitive habitat types and habitat types of limited representation on a local scale	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-22)**	▪ Develop and implement a biodiversity monitoring programme to establish long-term trends of floristic and faunal diversity patterns and the latent and immediate effects of the project on these receiving environments.	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability:** Improbable (-1) **Significance: Low (-9)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Disruption of important ecological processes, services, and infrastructure and altered ecological functionality (including fire, erosion) of surrounding areas and natural habitat	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-20)**	▪ Erosion control should be prioritized, notably during the planning phase where slopes, runoff from paved and tarmac areas and stormwater control measures need to be highlighted and planned to prevent erosion of surrounding natural areas. ▪ Ensure the implementation of erosion control measures on the perimeter of the development, aimed at avoiding exacerbation of the existing erosion patterns. ▪ Collection of branches, wood (dead or alive), shrubs or any vegetation for fire making purposes is strictly prohibited. ▪ Prevent all open fires on site. ▪ The irresponsible use of welding equipment, oxy-acetylene torches, and other naked flames, which could result in veld fires, or constitute a hazard should be guided by safe practice guidelines. ▪ The burning of general waste material is not to be allowed. ▪ Provide demarcated fire-safe zones, facilities, and suitable fire control measures.	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Improbable (-1) **Significance: Low (-9)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Introduction of exotic and invasive species to the area, or exacerbating the spread of existing infestations	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-52)**	▪ An Alien and Invasive Plant Management Programme should be developed and implemented with the onset of the construction phase. The aim of this programme should include (inter alia) the identification, control, and eradication of invasive plants from the site and immediate surrounds through a responsible, yet effective, management strategy that might involve a combination of physical removal methods and application of chemical treatments. The Environmental Officer shall compile relevant action plans to deal with the presence of alien and invasive species. ▪ The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-20)**

Table 5: Botanical impact assessment (Site 2)

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Impacts on/ losses of conservation important and protected plant species (individuals, stands, populations) as well as habitat that is associated with plants of conservation importance	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-75)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-70)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Losses, and deterioration, of natural and sensitive habitat types, including essential habitat refugia, atypical and unique/ restricted habitat types	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Depletion of local floristic diversity and loss of rare species or flora communities	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Low (-2) **Significance: Moderate (-30)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Deterioration and changes to untransformed habitat in the surrounds, with specific reference to sensitive habitat types and habitat types of limited representation on a local scale	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-52)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-18)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Disruption of important ecological processes, services, and infrastructure and altered ecological functionality (including fire, erosion) of surrounding areas and natural habitat	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-26)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-20)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Introduction of exotic and invasive species to the area, or exacerbating the spread of existing infestations	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**

Table 6: Botanical impact assessment (Site 3)

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Impacts on/ losses of conservation important and protected plant species (individuals, stands, populations) as well as habitat that is associated with plants of conservation importance	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-75)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-70)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Losses, and deterioration, of natural and sensitive habitat types, including essential habitat refugia, atypical and unique/ restricted habitat types	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-75)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-55)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Depletion of local floristic diversity and loss of rare species or flora communities	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Highly Probably (-4) **Significance: Moderate (-44)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Deterioration and changes to untransformed habitat in the surrounds, with specific reference to sensitive habitat types and habitat types of limited representation on a local scale	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Disruption of important ecological processes, services, and infrastructure and altered ecological functionality (including fire, erosion) of surrounding areas and natural habitat	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-26)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-18)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Introduction of exotic and invasive species to the area, or exacerbating the spread of existing infestations	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**

Table 7: Botanical impact assessment (Site 4)

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Impacts on/ losses of conservation important and protected plant species (individuals, stands, populations) as well as habitat that is associated with plants of conservation importance	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-75)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-70)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Losses, and deterioration, of natural and sensitive habitat types, including essential habitat refugia, atypical and unique/ restricted habitat types	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-75)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-55)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Depletion of local floristic diversity and loss of rare species or flora communities	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Highly Probably (-4) **Significance: Moderate (-44)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Deterioration and changes to untransformed habitat in the surrounds, with specific reference to sensitive habitat types and habitat types of limited representation on a local scale	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Disruption of important ecological processes, services, and infrastructure and altered ecological functionality (including fire, erosion) of surrounding areas and natural habitat	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-26)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-18)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Introduction of exotic and invasive species to the area, or exacerbating the spread of existing infestations	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**

Table 8: Botanical impact assessment (Site 5)

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Impacts on/ losses of conservation important and protected plant species (individuals, stands, populations) as well as habitat that is associated with plants of conservation importance	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Very High (-10) **Probability:** Definite (-5) **Significance: High (-85)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-70)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Losses, and deterioration, of natural and sensitive habitat types, including essential habitat refugia, atypical and unique/ restricted habitat types	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-75)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-55)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Depletion of local floristic diversity and loss of rare species or flora communities	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Highly Probably (-4) **Significance: Moderate (-44)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Deterioration and changes to untransformed habitat in the surrounds, with specific reference to sensitive habitat types and habitat types of limited representation on a local scale	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Disruption of important ecological processes, services, and infrastructure and altered ecological functionality (including fire, erosion) of surrounding areas and natural habitat	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-26)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-18)**
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Introduction of exotic and invasive species to the area, or exacerbating the spread of existing infestations	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ *Refer to mitigation measures proposed for Site 1.*	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**

Table 9: Cumulative botanical impact (all sites)

Cumulative
Anticipated cumulative impacts of the proposed project on the ecology of the region include: ▪ Inappropriate harvesting of natural resources and exacerbation of pressure on natural resources due to increased human encroachment, accessibility to the site, also considering changes in land use of surrounding areas that are not compatible to conservation efforts; ▪ Exacerbation of existing levels of habitat fragmentation and isolation, considering past, present and reasonably foreseeable future anthropogenic disruptive activities in the immediate region, with specific reference to mining activities; and ▪ Cumulative impacts on local/ regional and national conservation efforts, targets, and obligations (loss of natural habitat).

Table 10: Faunal impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Direct and permanent loss of natural fauna habitat within the development footprints	**Duration:** Permanent (-5) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: High (-75)**	▪ Minimize area cleared for construction activities and erect a temporary fence to contain construction operations. ▪ All sites should be fenced with a permeable fence structure to allow the free movement of smaller-bodied animal species. ▪ Development on habitat with high faunal sensitivity should be avoided (riparian thickets and drainage lines). ▪ Natural corridors (e.g. riparian thicket and drainage lines) must be retained between the sites to promote and allow for the movement of mobile fauna. ▪ Rehabilitate as a continual process - this will maximise the viability of the natural seed bank and prevent the unnecessary loss of topsoil during storage. ▪ The project footprint sites should be "screened" prior to, and during the construction phase for reptile species of conservation concern (especially for *Kinixys lobatsiana*) by a qualified herpetologist/ zoologist. This person should also be capable of handling venomous snakes. All species found should be relocated to suitable habitat not more than 50 km from the study sites. In addition, the contractor should contact the ECO or herpetologist/ zoologist should any snake (or reptile) species be found on or near the construction/ operation site. ▪ If any faunal species of conservation concern (as indicated in this report) is exposed during the construction phase, the ECO shall be informed, who shall then issue instructions for its capture, translocation and safe release to suitable habitat not more than 50km from the study sites.	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-44)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Indirect losses of animal taxa, especially threatened and near threatened animal species due to the displacement from the area during construction	**Duration:** Medium-term (-3) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Definite (-5) **Significance: Moderate (-65)**	▪ Due to the type of development, the type and nature of demarcation should not attempt to facilitate free movement of smaller animals as this could lead to unwanted presence (and accidental killing) of animals within the development site. Typical fencing employed for security purposes around the development is considered adequate. ▪ Minimize exterior lighting and implement operational strategies to reduce "spill light" although with the balance to achieve safety and security of the solar facilities. Outside features should be illuminated by using "down-lighting" rather than "up-lighting" as far as possible. ▪ All domestic waste generated (if present) should be removed from the study site as soon as possible and be disposed at an authorised landfill to reduce the risk of colonization by feral mammals, scavengers or competitively superior bird species (e.g. Pied Crows *Corvus albus*). ▪ Personnel and staff should be advised (by means of induction) by means of environmental awareness training on the biodiversity importance of the area. The intentional killing of any faunal species (in particular invertebrates, reptiles and snakes) must be avoided by means of awareness programmes presented to the labour force.	**Duration:** Medium-term (-3) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-22)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities and vegetation clearing **Impacts:** ▪ Indirect ecological impacts during all phases pertaining to the loss of the ecological connectivity and faunal dispersal corridors	**Duration:** Long-term (-4) **Scale: Regional** (-3) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ Natural corridors (e.g. drainage lines and riparian thicket) must be retained to promote the movement of fauna when a high rate of natural disruption is expected. ▪ All linear units (drainage lines) must be clearly demarcated. Construction and operation should be located outside these areas as far as possible. ▪ Appropriate buffer zones must be implemented to the riparian zone and along drainage features to alleviate the effect of habitat fragmentation – refer to *Table 3*. ▪ Where possible, existing access roads must be used and should preferably be perforated with road calming devices installed to prevent small-bodied or slow-moving animals from being killed, and to facilitate a safe means of dispersal. ▪ Newly planned roads (and powerlines) should avoid crossing drainage lines where possible. It is also highly advisable to place new powerlines adjacent to existing powerline servitudes. ▪ Runoff/ stormwater control measures on either side of roads and at the solar facilities must be constructed so that small terrestrial animals can cross them.	**Duration:** Medium-term (-3) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Moderate (-33)**
Construction	**Aspect:** Construction activities **Impacts:** ▪ Indirect impacts related to anthropogenic encroachment (job-seeking people, increased plundering of natural resources and poaching of wildlife due to increased human encroachment)	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Low (-2) **Significance: Low (-28)**	▪ All labour or staff should be advised (induction) by means of environmental awareness training on the ecological significance of the area and its conservation importance. ▪ Intentional killing of any faunal species (in particular invertebrates and snakes) must be avoided by means of awareness programmes presented to the labour force. ▪ Any person found deliberately harassing any animal in any way should face disciplinary measures, following the possible dismissal from the site.	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Low (-2) **Significance: Low (-28)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Operations	**Aspect:** PV plant operation **Impacts:** ▪ Secondary impacts related to infrastructure attracting animals (nesting and roosting on structures, foraging underneath panels, bird pollution)	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-56)**	▪ Apply appropriate deterrent devices to prevent birds from nesting on important structures. ▪ Monitor any nest-building activities and remove/ trim nests that are a risk (fire risk or affecting the operations of the solar facilities) with the consent of the local Conservation Department. Trimming should only be conducted during the non-breeding season. ▪ Conduct regular screens to determine the occurrence/density of invader taxa (e.g. invader/ alien rats and mice, domestic cats). If detected, a specialist in the field of pest control should be appointed to rectify the problem with the consent of the local Conservation Department. ▪ No pets should be allowed on the premises, with specific reference to feral cats.	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-24)**
Cumulative	Cumulative impacts on local/ regional and national conservation targets and obligations (e.g. loss of natural habitat) and expansion of developments in the wider study area.			

1.5 Avifauna

Table 11: Avifaunal impacts

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction of the solar power plant utilising the current layout – i.e. developing all five of the development sites. **Impact:** ▪ Direct transformative impact on natural habitat related to construction of solar panel arrays, cable trenching and internal access roads, as well as other construction-related activities including uncontrolled movement of vehicles and other construction machinery. The impact would relate to the loss of habitat for the current bird species inhabiting/ visiting the development site and surrounding area	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-60)**	▪ Clearing of vegetation to be completed in a phased manner. ▪ Construction activities must not encroach beyond the development footprint. ▪ Construction staff must not enter any areas of residual woodland or other natural habitat outside of the development footprint.	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-55)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Operation	**Aspect:** Operation of the solar power plant utilising the current layout i.e. developing all five of the development sites. **Impact:** ▪ Permanent transformative impact on natural vegetation that would lead to the loss of habitat for the current bird species inhabiting/ visiting the development site and surrounding area	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-55)**	▪ Retention of residual natural vegetation on the parts of the five development sites that do not fall within the solar array or other infrastructure footprint. ▪ Active protection of sensitive habitats through fencing off from public access i.e. the Steelpoort River riparian zone on the southern bank of the river and the ephemeral watercourse and its associated riparian zone. ▪ Non-development of the 350m buffer of the Wahlberg's Eagle nest should active nesting be confirmed to be occurring on the site.	**Duration:** Long-term (-4) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-55)**
	Aspect: Development (operation) of the solar power plant utilising the current layout i.e. developing all five of the development sites, as well as the development of power lines linking each of the five development sites to the two substations at the smelter **Impact:** ▪ Bird fatalities due to collisions with overhead power lines or with PV panels	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Medium (-3) **Significance: Moderate (-42)**	▪ Use of underground cables rather than an overhead line along the Site 5 powerline alignment to the north of the R555. ▪ Realignment of the Site 1 powerline to run immediately adjacent to the existing powerline. ▪ Realignment of the Site 4 powerline to run parallel to the existing powerline where it crosses the watercourse (thus removing the proposed bend tower from the watercourse's riparian corridor). ▪ Placing of bird flight diverters along key spans (as identified in Chapter 10).	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-24)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Cumulative	The development sites are located in close and relatively proximity to the town of Steelpoort. In the medium- to long-term, the town is likely to expand, with the development of more commercial and residential areas, which would expand into currently undeveloped areas around the town. The proposed development would accordingly form one part of a trend of increasing areas of natural habitat that are transformed from a natural state. Such trends are not unexpected in the radius of existing urban (and industrial) developments, within which the study is located. The cumulative loss of natural habitat through the different causes of land transformation, were these to all materialise in the near future, would combine to reduce the habitat available to the bird species that currently inhabit the area. The wider area would accordingly be likely to be characterised by a loss in species diversity and richness as the area becomes increasingly developed. This trend may be aggravated by the continued and increasing utilisation and harvesting of natural resources by residents in the area who would continue to remove woody vegetation (especially trees and larger shrubs) for firewood. Such natural resource use that leads to degradation of woodland habitats would be particularly pronounced in sensitive habitats for bird such as riparian corridors, thus worsening the impacts of increasing transformation of natural habitats.			

1.6 Heritage and Palaeontology

Table 12: Heritage and palaeontological assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities **Impacts:** ▪ Impact on burial grounds and graves	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Very High (-10) **Probability:** Highly Probable (-4) **Significance: Moderate (-64)**	▪ Implement a chance to find procedures in case where possible heritage finds are uncovered. ▪ An appropriately qualified heritage practitioner/ archaeologist must be identified to be called upon if any possible heritage resources or artefacts are identified. ▪ Burial grounds and graves should be demarcated with a 30m buffer as a No-Go area. ▪ It is recommended that consultation with regards to Site 5-8 is done with the local authorities before construction commence to determine the site's social significance. ▪ Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated, and construction activities halted. ▪ The qualified heritage practitioner/ archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and the impact on the heritage resource. ▪ Construction can commence as soon as the site has been cleared and signed off by the heritage practitioner/ archaeologist.	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Improbable (-1) **Significance: Low (-10)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities **Impacts:** ▪ Impact on archaeological sites	**Duration:** Permanent (-5) **Scale: Local** (-2) **Magnitude:** Very High (-10) **Probability:** Definite (-5) **Significance: High (-85)**	▪ If any of the identified archaeological sites on Sites 3, 4 and 5 are to be impacted a Phase 2 archaeological mitigation process must be implemented. This will include, surface collections, test excavations and analysis of recovered material. A permit issued under Section 35 of the NHRA will be required to conduct such work. ▪ On completion of the mitigation work the Developer can apply for a destruction permit together with a mitigation report. ▪ *Refer to further mitigation for burial grounds and graves above.*	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Moderate (-36)**
Construction	**Aspect:** Construction activities **Impacts:** ▪ Impact on palaeontological resources	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-16)**	▪ If fossil remains are discovered during any phase of construction, either on the surface or exposed by fresh excavations the Chance Find Protocol must be implemented by the ECO in charge of these developments. ▪ *Refer to further mitigation for burial grounds and graves above.*	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-10)**

1.7 Climate Change

Table 13: Climate change impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities **Impacts:** ▪ Climate change impacts on the movement of animals and birds related to water use	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-16)**	▪ Refer to mitigation measures in Table 10 and Table 11.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-10)**
Construction	**Aspect:** Construction activities **Impacts:** ▪ Soil erosion and sedimentation of water resources	**Duration:** Long-term (-4) **Scale:** Regional (-3) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-52)**	▪ Refer to mitigation measures included in Table 1, Table 2 and Table 3.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-10)**
Construction	**Aspect:** Construction activities **Impacts:** ▪ Climate change impacts on heritage resources	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Moderate (-36)**	▪ Refer to mitigation measures included in Table 12.	**Duration:** Permanent (-5) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Low (-2) **Significance: Low (-16)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities **Impacts:** ▪ Vehicle movement and construction activities will mobilise dust, which may be exacerbated by increased air temperature and drought conditions	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-50)**	▪ Vegetation along the borders of the site must as far as reasonably possible, not be removed, in order to act as a form of wind buffer for dust mitigation. It is further recommended that ground cover must be (re-) established to prevent erosion and dust. Revegetation must consider drought and heat resistant species. ▪ Vegetation along the borders of the site must as far as reasonably possible, not be removed, in order to act as a form of wind buffer for dust mitigation. It is further recommended that ground cover must be (re-) established to prevent erosion and dust. Revegetation must consider drought and heat resistant species. ▪ Refer to dust mitigation measures indicated in Table 16.	**Duration:** Immediate (-1) **Scale:** Site (-1) **Magnitude:** Minor (-2) **Probability:** Highly Probable (-4) **Significance: Low (-16)**
Construction	**Aspect:** Plant operation **Impacts:** GHG emissions	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Moderate (-30)**	▪ Currently, the use of fossil fuels for manufacturing and transport is unavoidable, but it's contribution to global GHG emissions can be mitigated through the use of less carbon intensive alternatives and construction methods that reduce the overall needs for transportation and materials haulage. ▪ Construction activities must avoid the use of old or improperly functioning equipment that use fossil fuels in an inefficient manner or that release fugitive emissions. Site administration (e.g. site camp) can also be runoff renewable energy sources as far as possible.	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Moderate (-30)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Plant operation **Impacts:** Avoided GHG emissions	**Duration:** Long-term (+4) **Scale:** National (+4) **Magnitude:** Moderate (+6) **Probability:** Definite (+5) **Significance: Moderate (+70)**	▪ Project is expected to have a negligible Scope 1 and 2 emissions profile – i.e. within the project boundaries - - and excluding Scope 3 emissions embodied in materials and transport to the site. Emissions during operation will be limited to maintenance activities that require energy other than what is available on site, such as liquid fuels for vehicles.	**Duration:** Long-term (+4) **Scale:** National (+4) **Magnitude:** Moderate (+6) **Probability:** Definite (+5) **Significance: Moderate (+70)**
Operation	**Aspect:** Lower than normal precipitation levels and increased drought result in water shortages **Impacts:** ▪ Water availability for operations	**Duration:** Long-term (-4) **Scale:** Regional (-3) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-60)**	▪ An Emergency Preparedness Plan must be developed and implemented for the construction and operational phase to deal with any climate related disaster occurrences such as a major floods or water shortage due to prevailing drought conditions. The plan must include emergency contact details, a list of emergency equipment on site and maintenance schedule, emergency operational procedures, evacuation routes and points. ▪ Construction and operational staff have regular tool-box-talks regarding emergency procedures.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-14)**
Operation	**Aspect:** Extreme rainfall events **Impacts:** ▪ Localised flooding	**Duration:** Immediate (-1) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-36)**	▪ An Emergency Preparedness Plan must be developed and implemented for the construction and operational phase to deal with any climate related disaster occurrences such as a major floods or water shortage due to prevailing drought conditions. The plan must include emergency contact details, a list of emergency equipment on site and maintenance schedule, emergency operational procedures, evacuation routes and points. ▪ Construction and operational staff have regular tool-box-talks regarding emergency procedures.	**Duration:** Immediate (-1) **Scale:** Local (-2) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-14)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Operation	**Aspect:** Warmer, drier conditions expected in the region may increase the risk and extent of wildfires **Impacts:** ▪ Wildfires can result in damage or loss of property and lives	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Medium (-3) **Significance: Moderate (-36)**	▪ An Emergency Preparedness Plan must be developed and implemented for the construction and operational phase to deal with any climate related disaster occurrences such as a wildfires. The plan must include emergency contact details, a list of emergency equipment on site and maintenance schedule, emergency operational procedures, evacuation routes and points. ▪ Construction and operational staff have regular tool-box-talks regarding emergency procedures.	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-16)**
Operation	**Aspect:** Plant operation **Impacts:** ▪ GHG emissions	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Moderate (-30)**	▪ Currently, the use of fossil fuels for manufacturing and transport is unavoidable, but it's contribution to global GHG emissions can be mitigated through the use of less carbon intensive alternatives and construction methods that reduce the overall needs for transportation and materials haulage. ▪ Construction activities must avoid the use of old or improperly functioning equipment that use fossil fuels in an inefficient manner or that release fugitive emissions. Site administration (e.g. site camp) can also be runoff renewable energy sources as far as possible.	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Minor (-2) **Probability:** Definite (-5) **Significance: Moderate (-30)**
Operation	**Aspect:** Plant operation **Impacts:** ▪ Energy security	**Duration:** Long-term (+4) **Scale:** National (+4) **Magnitude:** High (+8) **Probability:** Definite (+5) **Significance: High (+80)**	▪ Project is considered a positive impact on energy security.	**Duration:** Long-term (+4) **Scale:** National (+4) **Magnitude:** High (+8) **Probability:** Definite (+5) **Significance: High (+80)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Cumulative	GHG emissions are inherently cumulative in nature to the global atmosphere. Whilst the impact of the PV plant to the surrounding environment might be small or negligible, the combined or cumulative effects of multiple developments may have a greater impact. According to the Renewable Energy EIA Application Database for SA there are no proposed renewable energy projects within 30km of the project site. The closest project situated to the south-east of the study area consists of five hydropower stations to be established on the farms: Doornhoek 535LT, Tambotieboom 686 KS, De Hoop 886 KS, Loskop 81 JS and Blyderivierpoort 595 KS. The project is expected to have a positive level of change to the total amount of GHG emissions released over the lifespan of the project.			

1.8 Visual

Table 14: Visual impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction of the solar power plant utilising the current layout i.e. developing all five of the development sites **Impacts:** ▪ Direct transformative impact on natural habitat related to the construction of solar panel arrays, cable trenching and internal access roads, as well as other construction-related activities including uncontrolled movement of vehicles and other construction machinery. The impact would relate to the transformation of currently uncopied land parcels on which natural vegetation is present which could cause a visual impact	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Definite (-5) **Significance: Moderate (-50)**	▪ Clearing of vegetation to be completed in a phased manner. ▪ Construction activities must not encroach beyond the development footprint. ▪ Dust suppression must be applied to areas of cleared vegetation in very windy conditions and especially along construction access routes.	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Low (-4) **Probability:** Definite (-5) **Significance: Moderate (-40)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Operation	**Aspect:** Operation of the solar power plant utilising the current layout i.e. developing all five of the development sites **Impact:** ▪ Permanent transformative impact on natural vegetation on the five development sites with the development of solar arrays and associated powerlines, that would permanently alter parts of the landscape as viewed from surrounding receptor locations. This visual change could lead to perceptions of visual intrusion and impact	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Medium (-3) **Significance: Moderate (-36)**	▪ The existing altered visual baseline of the landscapes into which the developments would be located, and their location directly adjacent to existing areas of visual change due especially to urban or infrastructural development is a strong mitigating factor. ▪ Retention of residual natural vegetation on the parts of the five development sites that do not fall within the solar array or other infrastructure footprint. ▪ As the structures supporting the panels could create cumulative glint and glare if these are metallic and reflective, the consideration of non-reflective material for such supports is recommended. ▪ For the proposed powerlines, it is recommended that the monopole powerline tower be used (as opposed to the steel lattice tower) in order to reduce the visibility of powerline towers. ▪ The development of the Site 1 powerline along Anthracite Road rather than across the school sports field is preferred and recommended.	**Duration:** Long-term (-4) **Scale:** Local (-2) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-20)**

1.9 Social

Table 15: Social impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities **Impacts:** ▪ Danger to proximate residents (Mohlakwana, Matholeng, Stocking, Steelpoort Town) through increased road traffic, dust and potential noise	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-48)**	▪ Road signage, maintaining speed limits, watering down of the road during dry periods and the acknowledgement of free roaming cattle must be addressed. ▪ A policy on Contractor Health and Safety for the duration of their work on site, must apply, and be monitored. ▪ In addition, a Contractor's Code of Conduct (especially in terms of respecting local by-laws and specific practical community concerns on which agreement may be reached), should be applied for the duration of the construction period. ▪ Regular information sharing discussions with the Contractors must be pursued, giving residents an opportunity to voice concerns and grievances throughout the duration of the project construction. ▪ In addition, it is vitally important that a formal grievance management system be put in place (and should remain throughout the life of the plant).	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Low (-4) **Probability:** Medium (-3) **Significance: Low (-24)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities **Impacts:** ▪ Contractors, the influx of people and potential job creation will result in the proliferation of social ills and issues such as crime, prostitution, alcohol consumption, abuse, the spread of HIV/ AIDs, COVID19 etc.	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** High (-8) **Probability:** Highly Probable (-4) **Significance: Moderate (-48)**	▪ The Developer needs to be actively involved in the prevention of social ills associated with Contractors. ▪ Communication with local communities is also an important tool that will assist in monitoring such a situation. ▪ Formal grievance system to be maintained throughout project. ▪ Due to the concentration of a workforce in the area over the construction period, the Contractor must implement an HIV/ AIDS Awareness Programme, annually on site. COVID19 protocols must be observed. ▪ Strict penalties must be built into tenders to deal with issues such as petty crime, stock theft, fence cutting, trespassing etc.	**Duration:** Short-term (-2) **Scale:** Local (-2) **Magnitude:** Moderate (-6) **Probability:** Low (-2) **Significance: Low (-20)**

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction	**Aspect:** Construction activities **Impacts:** Local job creation opportunities	**Duration:** Short-term (+2) **Scale:** Local (+2) **Magnitude:** High (+8) **Probability:** Medium (+3) **Significance: Moderate (+36)**	▪ All labour (skilled and unskilled) and Contractors must be sourced locally where possible. ▪ Job creation expectations will have to be well managed via management systems and communication mechanisms that regularly informs the local community (on site and at local community centres) of the progress and job/ skills needs at the development site. ▪ A formal job application process must be communicated (should this be a requirement). It is expected that the Contractor will have a Human Resource Procedure/ Policy in place in order to respond to Local labour legislation. ▪ A formal grievance system to be maintained throughout the project ▪ A Community Liaison Officer must be appointed to deal with the employment of local labour and to interface between the Contractor and the local community. ▪ The principles of equality, BEE, gender equality and non-discrimination must be implemented.	**Duration:** Short-term (+2) **Scale:** Local (+2) **Magnitude:** High (+8) **Probability:** High (+4) **Significance: Moderate (+48)**

1.10 Dust and Emissions

Table 16: Dust and emission impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction and Decommission/ Closure & Rehab	**Aspect:** Construction activities (site clearing; excavations, drilling, operation of vehicles, equipment etc.) **Impacts:** ▪ Dust and emissions during construction	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Moderate (-6) **Probability:** Highly Probable (-4) **Significance: Moderate (-36)**	▪ The retention of a natural buffer (with a minimum width of 15-20m) comprising of natural vegetation (i.e. the natural trees and shrubs that are present on the development sites) along the boundary of each site would assist with dust mitigation. ▪ Dust must be suppressed on construction site and during the transportation of material during dry periods by the regular application of water. Water used for this purpose to be used in quantities that will not result in run-off generation. ▪ Loads to be covered to avoid loss of material in transport, especially if material is transported off site. ▪ Speed limit of 40km/hr to be set for all vehicles travelling over exposed areas. ▪ During the transfer of materials, drop heights should be minimised to control the dispersion of mater being transferred. ▪ Equipment used by the Contractor must be maintained in good working order to prevent smoke emissions. ▪ Chemical toilets must be provided and cleaned on a regular (weekly) basis.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Medium (-3) **Significance: Low (-21)**

1.11 Waste

Table 17: Waste impact assessment

Phase	Aspect and Impact	Without Mitigation	Mitigation	With Mitigation
Construction and Decommission/ Closure & Rehab	**Aspect:** Construction activities **Impact:** ▪ Waste generation during the construction phase will have a negative impact on the environment, if not controlled adequately. Waste includes general construction rubble, existing redundant infrastructure and hazardous waste (used oil, cement and concrete etc.)	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Highly Probable (-4) **Significance: Low (-28)**	▪ Adequate rubbish bins and waste disposal facilities must be provided on site and at the construction camp. ▪ The construction site must be kept clean and tidy and free from rubbish. ▪ Recycling/ re-use of waste must be encouraged. ▪ No solid waste must be burned on site. ▪ Bins must be provided to all areas that generate waste e.g. worker eating and resting areas and the camp site. General refuse and construction material refuse must not be mixed. ▪ Should rubble be required as a raw material for the construction, it must be taken to a designated stockpile area - which must be approved by the ECO. ▪ Spoil material must be hauled to a designated spoil site. No spoil material must be pushed down slope or discarded on site. ▪ The Municipality has one licensed landfill site situated at Apel. The site is a general waste facility, no hazardous waste is allowed, therefore all the waste generated during construction and operational phase must be disposed at the Malogeng Landfill site in Apel.	**Duration:** Short-term (-2) **Scale:** Site (-1) **Magnitude:** Low (-4) **Probability:** Low (-2) **Significance: Low (-14)**