GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY

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CONSTRUCTION OF ONSITE SUBSTATIONS

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APPENDIX 2

GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE DEVELOPMENT AND EXPANSION OF SUBSTATION INFRASTRUCTURE FOR THE TRANSMISSION AND DISTRIBUTION OF ELECTRICITY




environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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INTRODUCTION

1. Background

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) requires that an environmental management programme (EMPr) be submitted where an environmental impact assessment (EIA) has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation (EA). The content of an EMPr must either contain the information set out in Appendix 4 of the Environmental Impact Assessment Regulations, 2014, as amended (EIA Regulations) or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including but not limited to the applicant and the competent authority (CA).

2. Purpose

This document constitutes a generic EMPr relevant to applications for the development or expansion of substation infrastructure for the transmission and distribution of electricity, and all listed and specified activities necessary for the realisation of such infrastructure.

3. Objective

The objective of this generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

4. Scope

The scope of this generic EMPr applies to the development or expansion of substation infrastructure for the transmission and distribution of electricity requiring EA in terms of NEMA. This generic EMPr applies to activities requiring EA, mainly activity 11 and 47 of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014, as amended, and activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014, as amended, and all associated listed or specified activities necessary for the realization of such infrastructure.

5. Structure of this document

This document is structured in three parts with an Appendix as indicated in the table below:

Part	Section	Heading	Content
A		Provides general guidance and information and is **not legally binding**	Definitions, acronyms, roles & responsibilities and documentation and reporting.
B	1	Pre-approved generic EMPr template	Contains generally accepted impact management outcomes and impact management actions required for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of substation infrastructure for the transmission and distribution of electricity, which are presented in the form of a template that has been pre-approved. The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity. Where an impact management outcome is not relevant, the words "not applicable" can be inserted in the template under the "responsible persons" column. Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template **is not required** to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA. To allow interested and affected parties access to the pre-approved EMPr template for consideration through the decision-making process, the EAP on behalf of the applicant /proponent must make the hard copy of this EMPr available at a public location and where the applicant has a website, the EMPr should also be made available on such publicly accessible website.
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA will comply with the pre-approved generic EMPr template contained in Part B: Section 1, and understands that the impact management outcomes and impact management actions are **legally binding**. The preliminary infrastructure layout must be finalized to inform the final EMPr that is to be submitted with the basic assessment report (BAR) or environmental impact assessment report (EIAR), ensuring that all impact management outcomes

Part	Section	Heading	Content
			and impact management actions have been either pre-approved or approved in terms of Part C. This section **must be** submitted to the CA together with the final BAR or EIAR. The information submitted to the CA will be considered to be incomplete should a signed copy of Part B: section 2 not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.
C		Site specific sensitivities/ attributes	If any specific environmental sensitivities/ attributes are present on the site which require site specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr, to manage impacts, these specific impact management outcomes and impact management actions must be included in this section. These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided. These specific impact management outcomes and impact management actions must be presented in the format of the pre-approved EMPr template (Part B: section 1) This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if Part C is applicable to the site, it **is required** to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. Once approved, Part C forms part of the EMPr for the site and is legally binding. This section applies only **to additional** impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not already included in Part B: section 1.
Appendix 1			Contains the method statements to be prepared prior to commencement of the activity. The method statements are **not required** to be submitted to the competent authority.

6. Completion of part B: section 1: the pre-approved generic EMPr template

The template is to be completed prior to commencement of the activity, by providing the following information for each environmental impact management action:

- For implementation
  - a 'responsible person',
  - a method for implementation,
  - a timeframe for implementation
- For monitoring
  - a responsible person
  - frequency
  - evidence of compliance.

The completed template must be signed and dated by 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 be signed and dated on each page by 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.

7. Amendments of the impact management outcomes and impact management actions

Once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

- Amendment of the impact management outcomes: in line with the process contemplated in Regulation 37 of the EIA Regulations; and
- Amendment of the impact management actions: in line with the process contemplated in Regulation 36 of the EIA Regulations.

8. Documents to be submitted as part of part B: section 2 site specific information and declaration

Part B: Section 2 has three distinct sub-sections. The first and third sub-sections are in a template format. Sub-section two requires a map to be produced.

Sub-section 1 contains the project name, the applicant's name and contact details, the site information, which includes coordinates of the property or farm in which the proposed substation infrastructure is proposed as well as the 21-digit Surveyor General code of each cadastral land parcel and, where available, the farm name.

Sub-section 2 is to be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout using the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features and within 50 m from the development footprint.

Sub-section 3 is the declaration that the applicant (s)/proponent (s) or holder of the EA in the case of a change of ownership must complete which confirms that the applicant/EA holder will comply with the pre-approved 'generic EMPr' template in Section 1 and understands that the impact management outcomes and impact management actions are legally binding.

(a) Amendments to Part B: Section 2 – site specific information and declaration

Should the EA be transferred, Part B: Section 2 must be completed by the new applicant/proponent and submitted with the application for an amendment of the EA in terms of regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted as part of such an application for an amendment to an EA will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

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

"method statement" means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour and method(s) the Contractor proposes 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 must cover as a minimum 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
dEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EAR	Environmental Audit Report
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme Report
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act ,2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
MSDS	Material Safety Data Sheet
RI&AP's	Registered Interested and affected parties

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 EMPr gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

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

Responsible Person(s)	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 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

Responsible Person(s)	Role and 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.
Environmental Control Officer (ECO)	<u>Role</u> 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, cEO and 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. <u>Responsibilities</u> The responsibilities of the ECO will include the following: - Be aware of the findings and conclusions of all EA related to the development; - Be familiar with the recommendations and mitigation measures of this EMPr; - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance 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;

Responsible Person(s)	Role and Responsibilities
	- 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; - 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-compliances, 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)	<u>Role</u> The dEOs will report to the Project Manager and are responsible for 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. <u>Responsibilities</u> - Be fully conversant with the EMPr; - Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures;

Responsible Person(s)	Role and Responsibilities
	- 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 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 learnt 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 onsite 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 of substation infrastructure for the transmission and distribution of electricity activities. <u>Responsibilities</u> - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - 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 activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.

Responsible Person(s)	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 EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all substation 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 EMPr file. As a minimum, all documentation detailed below will be stored in the 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 DSS (where applicable). This duplicate file must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

4.2 Documentation to be available

At the outset of the project the following preliminary list of 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 or expansion;
- Copy of the generic and site specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that 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 must 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 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 commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- 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 EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
- General environmental information such as road kills or injured wildlife.

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

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

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

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

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date by which the corrective action 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 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:

1. 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:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Condition of all farm fences;
5. Topsoil storage areas;
6. All areas to be cordoned off during construction;
7. Waste management sites;
8. Ablution facilities (inside and out);
9. Any non-conformances deemed to be "significant";
10. All completed corrective actions for non-compliances;
11. All required signage;
12. Photographic recordings of incidents;
13. All areas before, during and post rehabilitation; and
14. 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:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. 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:

1. Record the full detail of the complaint as described in (**section 4.10**) above;
2. The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim 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
4. 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:

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

4.13 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: Pre-approved generic EMPr template

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

This section provides a pre-approved generic EMPr template with aspects that are common to the development of substation infrastructure for the transmission and distribution of electricity. There is a list of aspects identified for the development or expansion of substation infrastructure for the transmission and distribution of electricity, 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 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

Impact management outcome: All onsite staff are aware and understands the individual responsibilities in terms of this EMPr.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All staff must receive environmental awareness training prior to commencement of the activities; – The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; – Refresher environmental awareness training is available as 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; – 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. – 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; g) Water usage and conservation; h) Solid waste management procedures; i) Sanitation procedures; j) Fire prevention; and	**The Contractor and the contractor Environmental Officer (cEO).**	• **Compulsory Environmental Awareness Training Sessions.** • **Information Posters in accessible locations.**	**Pre-construction Phase.**	**The appointed Environmental Control Officer (ECO).**	**Monthly.**	**An Environmental Site File should be compiled and maintained by the cEO for the duration of the construction phase. This file should include proof of training, attendance registers, etc., and a copy of this file should be provided to the ECO, to append to the monthly audit reports.**

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

Impact 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	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– A method statement must be provided by the contractor prior to any onsite 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 lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management; – 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.	**The Contractor.**	**Submission of relevant Method Statement(s) for approval.**	**Pre-construction Phase.**	**The appointed ECO.**	**As Method Statements are submitted, and monthly monitoring.**	**Evidence of compliance and copies of all approved Method Statements must be appended to the pre-construction audit report.**

5.3 Access restricted areas

Impact management outcome: Access to restricted areas prevented.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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.	**The Contractor and the ECO.**	**Demarcation and the placement of relevant signage.**	**Pre-construction Phase.**	**The ECO.**	**Monthly.**	**The ECO must monitor the site to ensure that all restricted areas have been demarcated (photographic evidence) and that construction is not taking place within these areas.**

5.4 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– An access agreement 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***;	**The Developer Site Supervisor (DSS), the Contractor and the affected Landowners.**	**Formal access agreement.**	**Construction Phase.**	**The ECO.**	**Once-off, and monthly reporting.**	**The Contractor must provide the ECO with a copy of the access agreement, as well as any specific (agreed-upon) conditions.**

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 – Access roads must only be developed on pre-planned and approved roads.						

5.5 Fencing and Gate installation

Impact 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	Method of implementation	Timeframe for 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 100 mm between the bottom of the gate and the ground; – Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; – 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 the development activities; – Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access restricted areas, where applicable;	**The Contractor.**	**Supervision.**	**Construction Phase and prior to the commencement of the Operational Phase.**	**The ECO.**	**As required and reporting monthly.**	**Photographic evidence should be included in the monthly audit reports.**

– 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; – 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; – 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

Impact management outcome: Undertake responsible water usage**.**

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis; – 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; b. No damage occurs to the riverbed or banks and that the abstraction of water does not entail stream diversion activities; 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; and c. Including a discussion on water usage and conservation during environmental awareness training. d. The use of grey water is encouraged.	**The Contractor.**	• **Environmental Awareness Training.** • **Monitoring and supervision.**	**Construction Phase.**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**The cEO should report to the ECO and photographic evidence should be included in the monthly audit reports.**

5.7 Storm and wastewater management

Impact management outcome: Impacts to the environment caused by storm water and wastewater discharges during construction are avoided.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; – 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 storm water 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; – 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.	**The Contractor.**	**The implementation of the Stormwater Management Plan.**	**Construction Phase.**	**The cEO and the ECO.**	**Monthly.**	**Photographic evidence should be included in the monthly audit reports. The ECO should monitor the Contractor's compliance with the Stormwater Management Plan.**

5.8 Solid and hazardous waste management

Impact management outcome: Wastes are appropriately stored, handled and safely disposed of at a recognised waste facility**.**

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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 onsite 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.	**The Contractor.**	**The implementation of the Waste Management Plan.**	**Construction Phase.**	**The ECO.**	**Monthly.**	**Copies of the waste disposal certificates must be submitted to the ECO for inclusion in the audit reports. The ECO should monitor the Contractor's compliance with the Waste Management Plan.**

5.9 Protection of watercourses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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;	**The Contractor.**	**Adherence to the conditions of all General Authorisations and/or Water Use Licenses.**	**Construction Phase.**	**The ECO.**	**Monthly.**	**All conditions of the General Authorisations and/or Water Use Licenses must be included in the ECO's audit checklist. Photographic**

– 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 favored 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.						**evidence should be included in the monthly audit reports.**

5.10 Vegetation clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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;	**The Contractor and a Botanical Specialist (appointed to undertake**	• **Applications for all necessary permits.** • **Implementation of the Alien Vegetation**	**Pre-Construction and Construction Phases.**	**The ECO.**	**Monthly.**	**Copies of all relevant permits must be included in the pre-construction audit report, compliance with the Alien**

– 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 relevant CA 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; – 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; – All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to ***Section 5.3: Access restricted areas***. – Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.	**Floral Search and Rescue).**	**Management Plan.** • **Thorough Floral Search and Rescue by a suitably qualified specialist.** • **Compilation of a list of all species which require rescue and replanting, including the identification of a suitable location for replanting.** • **Monitoring.**				**Vegetation Management Plan must be monitored, and photographic evidence of replanting of Search and Rescue vegetation must be included in the audit reports. The ECO should provide photographic evidence of all species which have been rescued and replanted. The ECO must document all herbicide usage and ensure that a suitably qualified individual applies such herbicides (if required).**

5.11 Protection of fauna

Impact management outcome: Disturbance to fauna is minimised.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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 relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.	**The Contractor.**	• **Implementation of the mitigation measures stipulated in the Ecological Assessment Report.** • **Relevant Faunal Permits.** • **Faunal Search and Rescue by a suitably qualified specialist.** • **Snakes which occur within the development footprints should be removed and relocated by an experienced snake handler. Snake deterrents should be installed, where necessary.** • **Installation of bird guards and diverters, where necessary.**	**Pre-construction and Construction Phases.**	**The ECO.**	**Monthly.**	**The compliance with the conditions and mitigation measures must be audited by the ECO. Copies of any permits must be included in the audit reports. The ECO must ensure that any snakes, found within the development footprint, are removed by a suitably experienced snake handler. The ECO should include the type of snake(s) found in the audit reports and provide details of the removal as well as the area of relocation. Contact details of a suitably experienced snake handler must be available on site.**

5.12 Protection of heritage resources

Impact management outcome: Impact to heritage resources is minimised.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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***;	**The Contractor.**	• **Demarcation of identified sensitive**	**Pre-Construction and**	**The ECO and a suitably qualified**	**Monthly (ECO) and when**	**The ECO should include photographic evidence of the demarcated site(s)**

– Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; – All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development recommences.		**heritage resources.** • **Education in the identification of sensitive archaeological and palaeontological resources.** • **Relevant permits.**	**Construction Phases.**	**Archaeological and/or Palaeontological Specialist (if or when required).**	**required (the Specialists).**	**in the monthly audit reports. Copies of all permits must be included in the audit reports. The ECO should advise the Contractor on the correct course of action should potentially sensitive archaeological and/or palaeontological resources be discovered within the site.**

5.13 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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; – Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.	**The Contractor.**	**Monitoring.**	**Construction Phase.**	**The cEO and the ECO.**	**As required (cEO) and monthly (ECO).**	**The cEO should compile and maintain an incident and complaints register. All incidents and complaints must be reported to the ECO and the Developer's Project Manager (DPM). The incident and complaints register must be submitted to the ECO monthly for inclusion in the audit reports.**

5.14 Sanitation

Impact 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	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Mobile chemical toilets are installed onsite 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 100 m 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; – A copy of the waste disposal certificates must be maintained.	**The Contractor.**	**The implementation of the Waste Management Plan.**	**Construction Phase.**	**The ECO.**	**As required and monthly.**	**Copies of the wase disposal certificates must be submitted to the ECO for inclusion in the audit reports. The ECO should monitor the Contractor's compliance with the Waste Management Plan as well as the general levels of sanitation on the site.**

5.15 Prevention of disease

Impact Management outcome: All necessary precautions linked to the spread of disease are taken.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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; – Provide access to Voluntary HIV Testing and Counselling Services.	**The Contractor.**	• **Information posters, including contact details of suitable support.** • **Provision of medical guidance and support, where necessary.**	**Construction Phase.**	**The ECO.**	**Monthly.**	**The ECO should monitor the compliance with these management actions through verbal discussions with the Contractor and photographic evidence of information posters.**

5.16 Emergency procedures

Impact 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	Method of implementation	Timeframe for 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 fire as soon as it starts; – In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see ***Hazardous Substances section 5.17***).	**The Contractor.**	**Implementation of the Emergency Response Action Plan.**	**All phases of development.**	**The ECO.**	**Monthly.**	**The ECO should ensure that the Contractor has compiled an Emergency Response Action Plan and that emergency contact details are available at suitable locations within the construction site. Photographic evidence of the emergency contact details must be included in the audit reports.**

5.17 Hazardous substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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 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;	**The Contractor.**	• **Method Statement(s).** • **Implementation of the Stormwater Management Plan.** • **Implementation of the Waste Management Plan.** • **Implementation of the Emergency Response Action Plan.**	**Construction Phase.**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**The cEO and the ECO must monitor the Contractor's compliance with all relevant Method Statements, the Stormwater Management Plan, the Waste Management Plan, and the Emergency Response Action Plan (if/when required). In addition, the ECO should monitor the availability and use of spill kits and drip trays within the**

– Provision must be made for refueling 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; – Adequate fire-fighting equipment must be made available at all hazardous storage areas; – Where refueling away from the dedicated refueling station is required, a mobile refueling unit must be used. Appropriate ground protection such as drip trays must be used; – An appropriately sized spill kit kept onsite relevant to the scale of the activity/s 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; – 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 procedures concerning ***storm- and wastewater management*** and **5*.8*** for ***solid and hazardous waste management.***						**site. Copies of the HCS control sheet and the MSDS must be included in the audit reports.**

5.18 Workshop, equipment maintenance and storage

Impact management outcome: Soil, surface water and groundwater contamination is minimised.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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 fire as soon as it starts; – 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 onsite 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; – Water drainage from the workshop must be contained and managed in accordance Section ***5.7: Storm- and wastewater management***.	**The Contractor.**	• **Method Statement(s).** • **Implementation of the Stormwater Management Plan.** • **Implementation of the Waste Management Plan.**	**Construction Phase.**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**The cEO and the ECO must monitor the Contractor's compliance with all relevant Method Statements, the Stormwater Management Plan, and the Waste Management. In addition, the ECO should monitor the availability and use of spill kits and drip trays within the site.**

5.19 Batching plants

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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 10 m 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;	**The Contractor.**	• **Erect temporary fencing around the batching plant(s).** • **Method Statement(s).** • **Implementation of the Stormwater**	**Construction Phase.**	**The ECO.**	**Monthly.**	**The ECO must monitor the Contractor's compliance with the Stormwater Management Plan and the Waste Management Plan. The ECO should provide photographic evidence of the necessary temporary fencing, which is erected around batching plants. In**

– Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; – 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; – Temporary fencing must be erected around batching plants in accordance with Section ***5.5: Fencing and gate installation***.		**Management Plan.** • **Implementation of the Waste Management Plan.**				**addition, the ECO should obtain proof that excess materials have been disposed of at a registered disposal facility. Copies of any Method Statements relating to the batching plant(s) and proof of waste disposal must be included in the audit reports.**

5.20 Dust emissions

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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 re- vegetated 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; – 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;	**The Contractor.**	**Implementation of impact management actions (this report) and relevant mitigation measures (Basic Assessment Report).**	**Construction Phase.**	**The cEO and ECO.**	**Daily (cEO) and monthly (ECO).**	**The compliance with these management actions, as well as the mitigation measures stipulated in the Basic Assessment Report, must be indicated in the monthly audit reports. The cEO and ECO should ensure that any complaints relating to dust are recorded in the incident and complaints register.**

– Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; – Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks; – For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust.						

5.21 Blasting

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

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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.	**The Contractor.**	• **Notification of the landowners and surrounding landowners.** • **Blasting activities must only occur within the authorised (EA) times.**	**Construction Phase.**	**The ECO.**	**Limited to the specific blasting times (if any blasting is required).**	**The ECO must audit the blasting activities to ensure that blasting is undertaken in accordance with all relevant legislation, guidelines, and by-laws. Proof of landowner notification must be included in the audit reports. The ECO should ensure that any complaints relating to blasting are recorded in the incident and complaints register.**

5.22 Noise

Impact Management outcome: Prevent unnecessary noise to the environment by ensuring that noise from development activity is mitigated.

	Implementation	**Monitoring**

Impact Management Actions	Responsible person	Method of implementation	Timeframe for 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 on a daily basis for construction workers; – 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.	**The Contractor.**	• **Monitor the construction workers' adherence to the Code of Conduct.** • **No construction activities may take place outside of the authorised (EA) times.** • **Ensure that vehicles and machinery are serviced and maintained regularly to reduce noise.**	**Construction Phase.**	**The cEO and ECO.**	**Daily (cEO) and monthly (ECO).**	**The noise levels must be monitored daily by the cEO, and the cEO must report on these levels to the ECO for inclusion in the monthly audit reports. The ECO must monitor the adherence of construction workers to the Code of Conduct. The ECO should ensure that any complaints relating to noise are recorded in the incident and complaints register.**

5.23 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for 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; – 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.	**The Contractor and the cEO.**	• **Establishment of designated smoking areas.** • **Availability of fire-fighting equipment at the site camp.** • **Posters containing**	**Construction Phase.**	**The ECO.**	**Monthly.**	**The ECO should inspect the site and liaise with the cEO and the Contractor regarding fire prevention precautions which are in place within site. The ECO should review the Emergency Response Action Plan and provide photographic evidence of the designated smoking areas, posters which contain emergency contact**

		emergency contact details. • **Implementation of the Emergency Response Action Plan.**				**details and the available fire-fighting equipment. The ECO should ensure that any incidents relating to fire are recorded in the incident and complaints register and reported to the DPM.**

5.24 Stockpiling and stockpile areas

Impact management outcome: Reduce erosion and sedimentation as a result of stockpiling.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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, watercourses 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; – Topsoil stockpiles must not exceed 2 m in height; – During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.); – Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material.	**The Contractor.**	**Supervision of the implementation of the management actions and the mitigation measures.**	**Construction Phase.**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**The cEO and ECO should monitor the stockpiling of materials. The ECO should include photographic evidence of the material stockpiles and stockpile areas in the audit reports. The cEO should report any growth of alien vegetation on the stockpiles to the ECO, as well as any signs of erosion or sedimentation which occur as a result of the material stockpiles. The ECO should report on the condition of the material stockpiles in the audit reports and recommend additional mitigation measures and/or remedial actions should these be required.**

5.25 Civil works

Impact management outcome: Impact to the environment minimised during civil works to create the substation terrace.

	Implementation	**Monitoring**

Impact Management Actions	Responsible person	Method of implementation	Timeframe for 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 5.35: 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 150 mm topsoil for rehabilitation purposes.	**The Contractor.**	• **Compliance with the conditions of the EA and EMPrs.** • **Implementation of the Erosion Management Plan.** • **Implementation of the Stormwater Management Plan.** • **Implementation of the Alien Vegetation Management Plan.** • **Implementation of the Waste Management Plan.**	**Construction, Post-construction, and Operational Phases.**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**The cEO and ECO should monitor the site landscaping and rehabilitation against all required conditions. Photographic evidence should be provided in the audit reports as well as the recommendation of additional mitigation measures, where necessary.**

5.26 Excavation of foundation, cable trenching and drainage systems

Impact management outcome: No environmental degradation occurs as a result of excavation of foundation, cable trenching and drainage systems.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for 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 licensed landfill site, if not used for backfilling purposes; – Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for rehabilitation purposes;	**The Contractor.**	• **Method Statement(s).** • **Compliance with the conditions of the EA and EMPrs.** • **Implementation of the Erosion Management Plan.**	**Construction Phase.**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**Copies of the waste disposal certificates must be submitted to the ECO for inclusion in the audit reports. The ECO should monitor the Contractor's compliance with the relevant**

– Management of equipment for excavation purposes must be undertaken in accordance with ***Section 5.18: Workshop, equipment maintenance and storage***; and – Hazardous substances spills from equipment must be managed in accordance with ***Section 5.17: Hazardous substances***.		• **Implementation of the Stormwater Management Plan.** • **Implementation of the Waste Management Plan.**				**conditions and Management Plans.**

5.27 Installation of foundations, cable trenching and drainage systems

Impact management outcome: No environmental degradation occurs during the installation of foundation, cable trenching and drainage system.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– 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 waste and hazardous management***.	**The Contractor.**	• **Method Statement(s).** • **Implementation of the Waste Management Plan.** • **Implementation of the Erosion Management Plan.** • **Implementation of the Stormwater Management Plan.**	**Construction Phase**	**The cEO and the ECO.**	**Daily.**	**Either the cEO or the ECO should be present during the installation of foundations and cable trenching to ensure that the management actions are implemented and to provide photographic evidence for inclusion in the audit reports.**

5.28 Installation of equipment (circuit breakers, current Transformers, Isolators, Insulators, surge arresters, voltage transformers, earth switches)

Impact management outcome: No environmental degradation occurs as a result of installation of equipment.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Management of dust must be conducted in accordance with Section ***5. 20: Dust emissions***;	**The Contractor.**	• **Method Statement(s).**	**Construction Phase**	**The cEO and the ECO.**	**Daily (cEO) and**	**Either the cEO or the ECO should be present**

– 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***.		• **Implementation of the Waste Management Plan.** • **Implementation of the Erosion Management Plan.** • **Implementation of the Stormwater Management Plan.**			**monthly (ECO).**	**during the installation of equipment to ensure that the management actions are implemented and to provide photographic evidence for inclusion in the audit reports.**

5.29 Steelwork Assembly and Erection

Impact management outcome: No environmental degradation occurs as a result of steelwork assembly and erection.

Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for 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***.	**The Contractor.**	• **Supervision.** • **Method Statement(s).** • **Implementation of the Waste Management Plan.** • **Implementation of the Emergency Response Action Plan.**	**Construction Phase**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**Either the cEO or the ECO should be present during the steelwork assembly and erection to ensure that the management actions are implemented and to provide photographic evidence for inclusion in the audit reports.**

5.30 Cabling and Stringing

Impact management outcome: No environmental degradation occurs as a result of stringing.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Residual solid waste (off cuts etc.) shall be recycled or disposed of in accordance with **Section *6.8: 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***.	**The Contractor and the cEO.**	• **Supervision.** • **Method Statement(s).** • **Implementation of the Waste Management Plan.** • **Implementation of the Emergency Response Action Plan.**	**Construction Phase.**	**The cEO and the ECO.**	**Daily (cEO) and once-off (ECO).**	**The cEO should monitor all cabling and stringing and provide feedback on the compliance with the management actions and the conditions to the ECO for inclusion in the audit reports.**

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

Impact management outcome: No environmental degradation occurs as a result of Testing and Commissioning.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for 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***.	**The Contractor.**	**Implementation of the Waste Management Plan.**	**Construction Phase.**	**The ECO.**	**Once-off.**	**The ECO should inspect the site during testing and commissioning and provide feedback on the compliance with the management actions and the conditions in the audit reports. Photographs should be taken of the equipment and the condition of the site and immediate surrounds.**

5.32 Socio-economic

Impact management outcome: enhanced socio-economic development.

	Implementation	Monitoring

Impact Management Actions	Responsible person	Method of implementation	Timeframe for 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 neighboring 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.	**The Contractor and the DSS.**	**Communication and management.**	**All phases of development.**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**The cEO should compile and maintain an incident and complaints register. This register should be submitted to the ECO on a monthly basis. Incidents and complaints should be reported to the ECO within 48 hours and the ECO should report all incidents to the DSS.**

5.33 Temporary closure of site

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

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for 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: 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;	**The Contractor and the DSS.**	• **Supervision and management.** • **The implementation of the conditions of this EMPr and all relevant EMPrs.**	**All phases of development.**	**The ECO and the DPM.**	**Whenever temporary site closure occurs.**	**The ECO should undertake a site inspection prior to the temporary closure of the site. The ECO should include the temporary site closure dates as well as photographic evidence of the**

– 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.						**condition of the site in the audit reports.**

5.34 Dismantling of old equipment

Impact 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	Method of implementation	Timeframe for 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.	**The Contractor.**	**The implementation of the Waste Management Plan.**	**Construction Phase.**	**The ECO.**	**Monthly.**	**Copies of the waste disposal certificates must be submitted to the ECO for inclusion in the audit reports. The ECO should monitor the Contractor's compliance with the Waste Management Plan.**

5.35 Landscaping and rehabilitation

Impact 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	Method of implementation	Timeframe for 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 of 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 – 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 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;	**The Contractor, a suitably qualified Botanical Specialist, and the DSS.**	• **Compliance with the conditions of the EA and EMPrs.** • **Implementation of the Erosion Management Plan.** • **Implementation of the Stormwater Management Plan.** • **Implementation of the Alien Vegetation Management Plan.** • **Implementation of the Waste Management Plan.**	**Construction, Post-construction, and Operational Phases.**	**The cEO and the ECO.**	**Daily (cEO) and monthly (ECO).**	**The cEO and ECO should monitor the site landscaping and rehabilitation against all required conditions. Photographic evidence should be provided in the audit reports as well as the recommendation of additional mitigation measures, where necessary.**

– 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 seed 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 the requirements of Regulation 26(h) of the EIA Regulations.

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: **Mulilo Newcastle Wind Power (Pty) Ltd**

Name of contact person for applicant: **Constantin Hatzilambros**

Tel No: **+27 (0)21 685 3240**

Fax No: **N/A**

Postal Address: **Post Net Suite #53, Private Bag X21, Howard Place**

Physical Address: **Top Floor Golf Park 4 Raapenberg Rd Mowbray 7700, Cape Town**

7.1.2 Details and expertise of the EAP:

Name of environmental consultancy: **Coastal and Environmental Services (Pty) Ltd. (t/a "CES")**

Name of EAP: **Dr Alan Carter**

Assisting EAP: **Ms Robyn Thomson**

Tel No: **+27 (0)43 726 7809**

Fax No: **+27 (0)86 410 7822**

E-mail address: **a.carter@cesnet.co.za | r.thomson@cesnet.co.za**

Expertise of the EAP (Curriculum Vitae included): **Yes, please see Appendix 2.**

7.1.3 Project name: **Mulilo Newcastle Wind Power (Pty) Ltd, Wind Energy Facility, near Newcastle, KwaZulu-Natal Province (DFFE Reference Number: 14/12/16/3/3/2/2457).**

7.1.4 Description of the project:

Mulilo Newcastle Wind Power (Pty) Ltd proposes to develop, construct and operate the 200 MW Mulilo Newcastle Wind Power (MNWP) WEF as part of the Mulilo Newcastle Wind Energy Facility (WEF) Complex located near Newcastle in KwaZulu-Natal.

The MNWP WEF will comprise up to 35 possible positions and will have an anticipated lifespan of 20 – 25 years. The WEF will be located on six (6) land parcels with a total extent of 2,940 ha.

The WEF layout allows for up to 35 wind turbine sites with a maximum output capacity of 200 MW. The proposed turbine footprints and associated facility infrastructure will cover an area of up to 65 ha after rehabilitation.

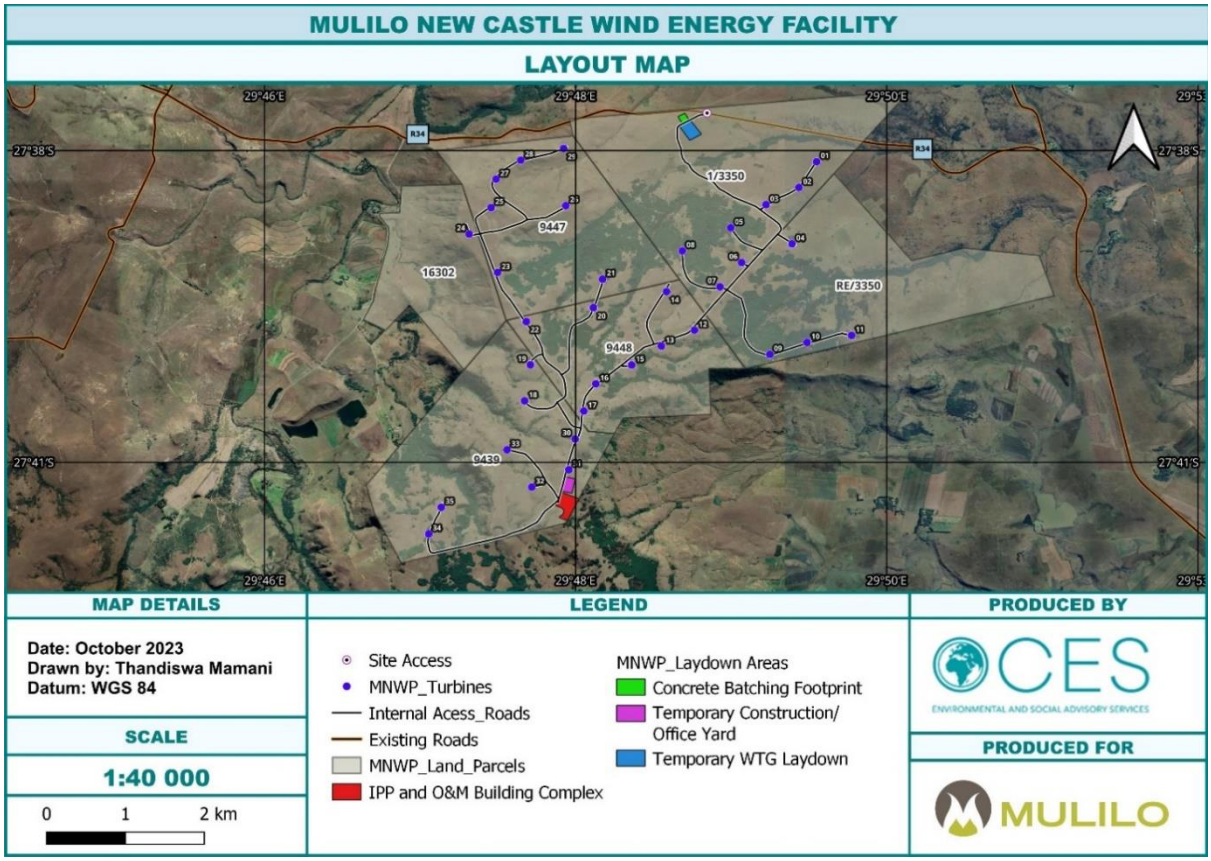


Figure 1: Layout map of the proposed MNWP WEF project

The Environmental Authorizations for the powerline connections to the Eskom grid at the Incandu Substation, has been subject to separate applications and the Basic Assessment process.

The following tables summarise the key technical details for the MNWP WEF project:

Table 2: Turbine specifications

Component	Specification
WEF Capacity	Up to 200 MW
Number of Turbines	Up to 35 turbines
Power output per turbine	Unspecified
Hub Height	Up to 140 m
Rotor Diameter	Up to 200 m
Blade length	Up to 100 m
Turbine tip height	Up to 240 m

Table 3: WEF component descriptions

Facility Component	Description
Crane platform and hardstand area	Crane platform and hardstand laydown for each turbine position.

Facility Component	Description
Turbine Foundations	Reinforced Concrete Foundation. Depth: up to 3.5 m Diameter: up to 30 m per turbine Volume of concrete: up to 800 m^3 per turbine.
IPP Substation	33 kV to 132 kV collector substation to receive, convert and step-up electricity from the WEF to the 132 kV grid suitable supply. The substations maximum height will be Lightning Mast up to 25 m high. The facility will house control rooms and grid control yards for both Eskom and the IPP. Additional infrastructure includes parking, up to 2.8 m high fencing, storm water channels and culverts, ablutions, water storage tanks, septic tank, and borehole.
Construction/office yard	This includes bunded fuel areas, oil storage areas, general stores (containers) and skips.
WTG component laydown area	Temporary laydown area.
On-site concrete batching plant	Temporary on-site concrete batching plant.
Primary Site Access Roads	Site access will, where possible, make use of existing farm roads that will be upgraded and maintained for the life of the WEF. The existing roads to be upgraded will be expanded to a width of up to 9 m. New roads will be constructed (in areas where there are no existing roads) with a width of up to 9 m to the IPP substation and laydown areas. V-drains will run on both sides of the road.
Internal roads	Roads connecting the turbine positions will where possible make use of existing farm roads that will be upgraded and maintained for the life of the plant. The existing roads to be upgraded will be expanded to a width of up to 6 m. New roads will be constructed (in areas where there are no existing roads) with a width of up to 6 m and will connect all turbines. V-drains will run on both sides of the road. In certain areas of steep slopes, the constructed road will require cut and fill which will extend the final 9m total width of the road during operations.
33 kV reticulation	A combination of 33 kV overhead lines and 33 kV underground cable (where technically feasible) will be used, aligned along the road network connecting each WTG position to the IPP substation.
Operations and maintenance (O&M) buildings	Includes other infrastructure such as parking, up to 2.8 m high fencing, storm water channels and culverts, ablutions, water storage tanks, septic tanks and borehole.

Facility Component	Description
Met masts	Two met masts (Up to 140 m height).

Table 4: WEF component footprints

Facility Component	Construction footprint	Final footprint after rehabilitation
Crane platform and hardstand area	Up to 0.8 ha per turbine which equates to 28 ha.	Up to 0.8 ha per turbine which equates to 28 ha.
Turbine foundations	Up to 0.07 ha per turbine which equates to 2.5 ha (included in hardstand area).	Up to 0.07 ha per turbine which equates to 2.5 ha (Included in hardstand area).
IPP substation	Up to 1 ha	Up to 1 ha
Construction/office yard	Up to 4 ha	0 ha
WTG component laydown area	Up to 4 ha	0 ha
On-site concrete batching plant	Up to 1 ha	0 ha
Temporary stockpiles	Up to 2 ha	0 ha
Primary site access road and reticulation	Total width of up to 15 m consisting of: • Up to 12 m wide area prepared for road and v-drain • Up to 3 m width for underground 33 kV reticulation. Overhead lines to be used where underground cables are not technically feasible. Total length up to 8.5 km which equates to 13 ha.	Total width of up to 12 m consisting of: • Up to 9 m wide road • Up to 1.5 m wide v-drain on either side of road Total length up to 8.5 km, which equates to 10.5 ha. 33 kV underground / overhead line reticulation and stockpile areas to be rehabilitated. Final footprint up to 0.25 ha to account for cable markers and/or overhead line foundations and stays along primary site access roads.
Internal roads and reticulation	Total width of up to 12 m consisting of: • Up to 9 m wide area prepared for road and v-drain • Up to 3 m wide area for underground 33 kV	Total width of up to 9 m consisting of: • Up to 6 m wide road • Up to 1.5 m wide v-drain on either side of road

Facility Component	Construction footprint	Final footprint after rehabilitation
	reticulation. Overhead lines to be used where underground cables are not technically feasible. Total length up to 25 km which equates to 30 ha.	Total width of up to 9 m consisting of: • Up to 6 m wide road • Up to 1.5 m wide v-drain on either side of road Total length up to 25 km, which equates to 22.5 ha. 33 kV underground / overhead line reticulation and stockpile areas to be rehabilitated. Final footprint up to 1 ha to account for cable markers and/or overhead line foundations and stays along internal roads.
Operations and maintenance (O&M) buildings	Up to 0.5 ha	Up to 0.5 ha
Met masts	Up to 0.002 ha per met mast which equates to 0.004 ha.	Up to 0.002 ha per met mast which equates to 0.004 ha.
Total	**Up to approximately 86 ha**	**Up to approximately 65 ha**

7.1.5 Project location:

The proposed MNWP WEF will be located approximately 15 km north west of the town of Newcastle in the Kwazulu-Natal Province. The study area (hereinafter referred to as the "Site") is situated in Ward 1 of the Newcastle Local Municipality within the Amajuba District Municipality (ADM) and which is detailed further in this Environmental Management Programme Report (hereinafter referred to as "EMPr").

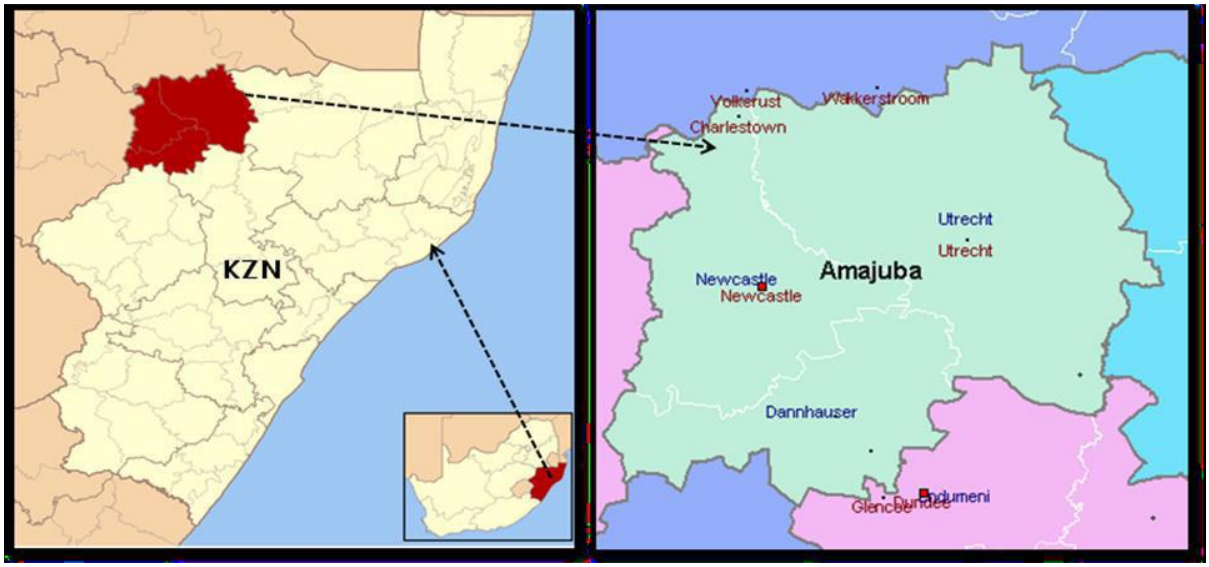


Figure 2: Location of the proposed MNWP WEF Complex within the KZN Province, Amajuba DM and Newcastle LM.

MNWP WEF property portions

Table 2 below indicates the property portions and farm names associated with the MNWP WEF project area. The proposed project is situated on approximately 2,940 ha of land consisting of six (6) farm portions.Table 2: Details of Mulilo Wind Power Properties.

SG DIGIT NUMBER	FARM NAME	FARM NUMBER/PORTION	AREA (HA)
N0HS00000000335000002	Geelhoutboom	3350	647
N0HS00000000335000001	Geelhoutboom	3350	567
N0HS00000000944700000	Bernard	9447	465
N0HS00000001630200000	Spitskop	16302	587
N0HS00000000943900000	Cliffdale	9439	280
N0HS00000000944800000	Byron	9448	392
TOTAL			2 940

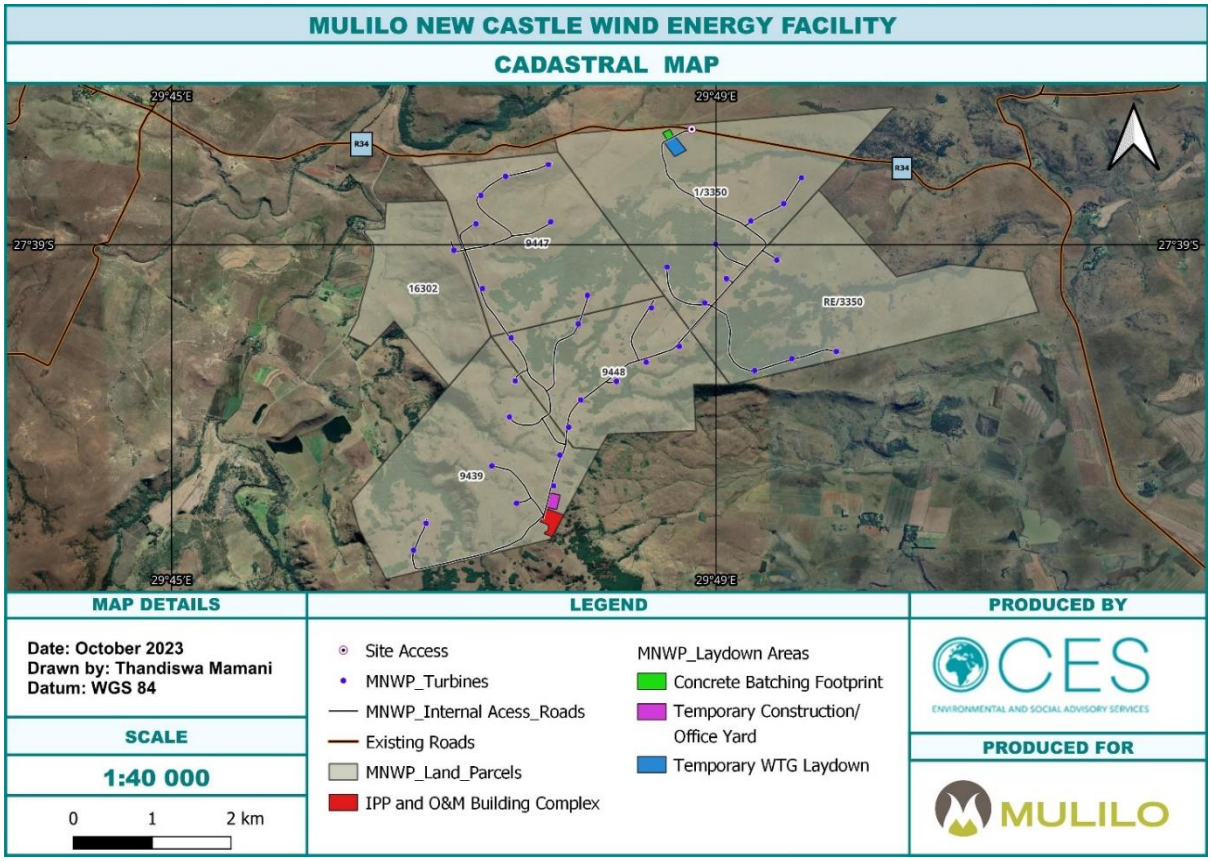


Figure 3: Cadastral Map of the affected properties within the MNWP WEF site

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. The sensitivity map must be prepared from the national web based environmental screening tool, when available for compulsory use at: https://screening.environment.gov.za/screeningtool. The sensitivity map shall identify the nature of each sensitive feature e.g. threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features within 50 m from the development footprint.

Please see Appendix 3 for the National Screening Tool Report Maps of the proposed WEF substation.

7.3 Sub-section 3: Declaration

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in Part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 days prior to the date on which the activity will commence of commencement of construction to facilitate compliance inspections.

Digitally signed by Constantin Hatzilambros
DN: cn=Constantin Hatzilambros, o=Mulilo Renewable Project Developments (Pty) Ltd, ou, email=constantin@mulilo.com, c=ZA
Date: 2024.02.05 10:56:30 +02'00'

Signature Proponent/applicant/ holder of EA _____

Date: 5 February 2024

7.4 Sub-section 4: amendments to site-specific information (Part B; section 2)

Should the EA be transferred to a new holder, Part B: Section 2 must be completed by the new holder and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted for an amendment to an environmental authorisation will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

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 impact management actions must be included in this section. These specific management controls must be referenced spatially, and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

If Part C is applicable to the development as authorised in the EA, it is required to be submitted to the CA together with the BAR or EIAR, for consideration of, and decision on, the application for EA. 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. Once approved, Part C forms part of the EMPr for the site and is legally binding.

This section will **not be required** should the site contain no specific environmental sensitivities or attributes.

APPENDIX 1: METHOD STATEMENTS

To be prepared by the contractor prior to commencement of the activity. The method statements are **not required** to be submitted to the CA.

APPENDIX 2: *CURRICULUM VITAE* OF THE EAP AND ENVIRONMENTAL TEAM

- Dr Alan Carter (CES, Executive Consultant) *– EAP, Project Leader and Report Reviewer*
- Ms Robyn Thomson (CES, Principal Consultant) *– Project Manager and Lead Author*
- Ms Sinenjongo Gcina (CES, Consultant) *– Generic EMPr Co-author*

EMPLOYMENT EXPERIENCE

- January 2001 – Present: Executive Director (Coastal & Environmental Services, East London, South Africa)
- January 1999 – December 2001: Manager (Arthur Andersen LLP, Public Accounting Firm, Chicago, Illinois USA)
- December 1996 – December 1998: Senior Accountant/Auditor (Ernst & Young LLP, Public Accounting Firm, Austin, Texas, USA).)
- January 1994 – December 1996: Senior Accountant/Auditor (Ernst & Young, Charteris & Barnes, Chartered Accountants, East London, South Africa)
- July 1991 – December 1994: Associate Consultant (Coastal & Environmental Services, East London, South Africa)
- March 1989 – June 1990: Data Investigator (London Stock Exchange, London, England, United Kingdom)

ACADEMIC QUALIFICATIONS

- Ph.D. Plant Science (Marine) - Rhodes University 1987
- B. Compt. Hons. Accounting Science - University of South Africa 1997
- B. Com. Financial Accounting - Rhodes University 1995
- B.Sc. Hons. Plant Science - Rhodes University 1983
- B.Sc. Plant Science & Zoology - Rhodes University 1982

COURSES

- Environmental Management Systems Lead Auditor Training Course - American National Standards Institute and British Standards Institute (2000) .
- ISO 14001:2015 Implementing Changes - British Standards Institute (2015)
- Numerous other workshops and training courses.

CONSULTING EXPERIENCE

Environmental Impact Assessment

- Managed numerous environmental impact assessment (EIA) projects (estimated at over 200 EIAs) and prepared EIA reports in terms of relevant EIA legislation and regulations (including World Bank and IFC Standards) for development proposals including: bulk water and waste water, roads, electrical, mining, ports, aquaculture, renewable energy (over 20 solar facilities and over 20 wind farms), industrial processes, housing developments, golf estates and resorts, etc. (2002 – present).
- Projects have also included preparation of applications in terms of other statutory requirements, such as water-use and mining licence /permit applications.
- Assisted City of Johannesburg in the process to proclaim four nature reserves in terms of relevant legislation (2015-2016).

Feasibility and Pre-feasibility Assessments

- Managed projects to develop pre-feasibility and feasibility assessments for various projects, including various tourism developments, aquaculture, infrastructure projects, etc.
- Managed project for the East London Industrial Development Zone (ELIDZ) to develop a Conceptual Framework for a Mariculture Zone within the ELIDZ (2009).
- Managed the following aquaculture feasibility studies:
  - Mariculture Zone at Qoloha on the South African Wild Coast (2013).
  - Mariculture Zone within the Coega Industrial Development Zone (2014).
  - Aquaponics Zone within the Coega Industrial Development Zone (2017).
  - Finfish cage farming within the Port of Richards Bay (2019).

- Multispecies aquaculture hatchery and demonstration facility in the Eastern Cape Province (2019).

- Managed project to determine the financial feasibility of various proposed tourism developments for the Kouga Development Agency in the Eastern Cape Province (2006)
- Contributed significantly to a study to determine the financial and environmental feasibility of three proposed tourism development projects at Coffee Bay on the Wild Coast (2004).

Strategic Environmental Assessment

- Managed Strategic Environmental Assessment (SEA) project toward the development of a Biofuel Industry in the Eastern Cape Province of South Africa (2014-2016)
- Managed Strategic Environmental Assessment (SEA) projects for two South African ports (2006 – 2007).
- Managed Strategic Environmental Assessment (SEA) projects for five (5) local municipalities in the Eastern Cape as part of the municipal Spatial Development Framework plans (2004 – 2005).
- Involved in the financial assessment of various land-use options and carbon credit potential as part of a larger Strategic Environmental Assessment (SEA) for assessing forestry potential in Water Catchment Area 12 in the Eastern Cape of South Africa (2006).

Climate change, emissions trading and renewable energy

- Provided specialist peer review services for National Department of Environmental Affairs relating to climate change impact assessments for large infrastructure projects (2017-2018).
- Conducted climate change impact assessment for a proposed coal-fired power station in Africa (2017-2018).
- Participated in the development of a web-based Monitoring & Evaluation (M&E) system for climate change Mitigation and Adaptation in South Africa for National Department of Environmental Affairs (DEA) (2015-2016.
- Managed project to develop a Climate Change Strategy for Buffalo City Metro Municipality (2013).
- Managed projects to develop climate change strategies for two district municipalities in the Eastern Cape Province (2011).
- Conducted specialist carbon stock and greenhouse gas emissions impact and life cycle assessment as part of the Environmental, Social and Health Impact Assessment for a proposed sugarcane to ethanol project in Sierra Leone (2009 - 2010) and a proposed Jatropha bio-diesel project in Mozambique (2009 - 2010).
- Managed project to develop the Eastern Cape Province Climate Change Strategy (2010).
- Managed project to develop a Transnet National Ports Authority Climate Change Risk Strategy (2009).
- Participated in a project to develop a Renewable Energy roadmap for the East London Industrial Development Zone (ELIDZ) (2013).
- Participated in a project for the East London Industrial Development Zone (ELIDZ) and Eastern Cape Government to prepare a Renewable Energy Strategy (2009).
- Contributed to the development of Arthur Andersen LLP's International Climate Change and Emissions Trading Services (2001).
- Conducted carbon credit (Clean Development Mechanism - CDM) feasibility assessment for a variety of renewable energy projects ranging from biogas to solar PV.

- Participated in the preparation of CDM applications for two solar PV projects in the Eastern Cape.

Waste Management

- Managed project to develop Integrated Waste Management Plans for six local municipalities on behalf of the Sarah Baartman District Municipality in the Eastern Cape Province (2016).
- Managed project to develop Integrated Waste Management Plans for four local municipalities on behalf of Alfred Nzo District Municipality in the Eastern Cape Province (2015).
- Managed project to develop Integrated Waste Management Plans for eight local municipalities on behalf of Chris Hani District Municipality in the Eastern Cape Province (2011).
- Managed a project to develop a zero-waste strategy for a community development in the Eastern Cape Province (2010).
- Managed waste management status quo analysis for a District Municipality in the Eastern Cape Province (2003).
- For three consecutive years, managed elements of the evaluation of the environmental financial reserves of the three largest solid waste companies (Waste Management, Inc., Republic Services, Inc., Allied Waste, Inc.) and number of smaller waste companies in the USA as part of the annual financial audit process for SEC reporting purposes. Ensured compliance with RCRA and CERCLA environmental regulations.
- Managed elements of the evaluation of the environmental financial reserves of the largest hazardous waste company in the USA (Safety-Kleen, Inc.), as part of the audit process for SEC reporting purposes. Ensured compliance with RCRA and CERCLA environmental regulations.

Environmental auditing and compliance

- Conducted environmental legal compliance audit for various large Transnet Freight Rail facilities (2018).
- Lead auditor for numerous Environmental Control Officer (ECO) projects, including construction of wind and solar farms, road infrastructure, bulk water and sewage infrastructure, port infrastructure, cemeteries, etc.
- Participated in numerous ISO14001 Environmental Management System (EMS) audits for large South African corporations including SAPPI, BHP Billiton, SAB Miller, Western Platinum Refinery, Dorbyl Group and others (2002 – present).
- Reviewed the SHE data reporting system of International Paper, Inc. (IP) for three successive years as part of the verification of the IP SHE Annual Report, which included environmental assessments of 12 IP pulp and paper mills located throughout the USA.

Environmental Due Diligence and Business Risk

- Participated in project on behalf of the CDC Group (UK) to conduct a due diligence on the ESG systems and mechanisms in place for an agro-industry investment entity with considerable agricultural investments throughout Africa (2021).
- Conducted environmental due diligence projects on behalf of the German Development Bank for a forestry pulp and paper operation in Swaziland (2010) and for a large diversified South African agricultural/agro-processing company (2011).
- Managed project for the Transnet National Ports Authority to identify the environmental risks and liabilities associated with the operations of the Port of Durban

as part of a broader National initiative to assess business and financial risks relating to environmental management (2006).
- Conducted sustainability and cost/benefit analysis of various waste water treatment options (including a marine pipeline at Hood Point) for the West Bank of East London (2004).
- Conducted analysis of permit fees and application processing costs for off-road vehicle use on the South African coastline for the Department of Environmental Affairs and Tourism, Marine & Coastal Management (2003).
- Involved in the determination of the historical cost element of environmental remediation insurance claims for a number of multinational companies, including Dow Chemicals, Inc. and International Paper, Inc.
- Evaluated the environmental budgeting process of the US Army and provided best practice guidance for improving the process.

Policy and Guidelines
- Managed project to develop an Estuarine Management Plan for the Quinera Estuary for the Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (2021).
- Development of Administration / Application Fee Structure for the Reclamation of Land, Coastal Use Permits, Coastal Waters Discharge Permits, Dumping of Waste at Sea, Off-Road Vehicle Regulations Promulgated in Terms of the National Environmental Management Act: Integrated Coastal Management Act (Act No. 24 Of 2008) (2017).
- Managed project to develop an Estuarine Management Plan for the Buffalo River Estuary for the National Department of Environmental Affairs (2017).
- Managed project to develop a Coastal Management Programme for Amathole District Municipality, Eastern Cape (2015 – 2016).
- Managed project to develop a sustainability diagnostic report as part of the development of the Eastern Cape Development Plan and Vision 2030 (2013).
- Managed project for the Department of Environmental Affairs and Tourism, Marine & Coastal Management to determine the cost implications associated with the implementation of the Integrated Coastal Management Act (2007).
- Managed project to develop a Conservation Plan and Municipal Open Space System (MOSS) for Buffalo City Municipality (2007)
- Managed project to develop a Sanitation Policy and Strategy for Buffalo City Municipality, Eastern Cape (2004 – 2006).
- Managed project to develop an Integrated Environmental Management Plan and Integrated Coastal Zone Management Plan for Buffalo City Municipality, Eastern Cape (2004 – 2005).
- Managed projects to develop and implement an Environmental Management System (EMS) for the Chris Hani and Joe Gqabi (formerly Ukhahlamba) District Municipalities in the Eastern Cape generally in line with ISO14001 EMS standards (2004 – 2005).
- Managed project to develop a State of the Environment Report and Environmental Implementation Plans for Amathole, Chris Hani, OR Tambo and Joe Gqabi District Municipalities in the Eastern Cape Province (2005 – 20010).
- Conducted analysis of permit fees and application processing costs for off-road vehicle use on the South African coastline for the Department of Environmental Affairs and Tourism, Marine & Coastal Management (2003).

Environmental & Social Management Systems

PUBLICATIONS

- Managed project to develop Environmental & Social Management Systems (ESMS) in line with IFC Performance Standards for an agricultural equipment supplier in Malawi on behalf of Norfund (2021).
- Managed projects to develop Environmental Management Systems (EMS) in line with ISO14001 EMS Standard for a South African water utility (2019).
- Managed projects to develop Environmental & Social Management Systems (ESMS) in line with IFC Performance Standards for four (4) wind farms in South Africa (2015-2018).
- Managed project to develop an Environmental & Social Management System (ESMS) in line with IFC Performance Standards for a telecoms company in Zimbabwe on behalf of the German Development Bank (2013).
- Conducted Environmental Management System (EMS) reviews for a number of large US corporations, including Gulfstream Aerospace Corporation.

Public financial accounting

- While with Ernst & Young LLP, (USA), functioned as lead financial auditor for various public and private companies, mostly in the technology business segment of up to $200 million in annual sales. Client experience included assistance in a $100 million debt offering, a $100 million IPO and SEC annual and quarterly reporting requirements.
- Completed three years of articles (training contract) in fulfilment of the certification requirements of the South African Institute of Chartered Accountants which included auditing, accounting and preparation of tax returns for many small to medium sized commercial entities.

Refereed Publications

- Carter, A.R. 1985. Reproductive morphology and phenology, and culture studies of *Gelidium pristoides* (Rhodophyta) from Port Alfred in South Africa. Botanica Marina 28: 303-311.
- Carter, A.R. 1993. Chromosome observations relating to bispore production in *Gelidium pristoides* (Gelidiales, Rhodophyta). Botanica Marina 36: 253-256.
- Carter, A.R. and R.J. Anderson. 1985. Regrowth after experimental harvesting of the agarophyte *Gelidium pristoides* (Gelidiales: Rhodophyta) in the eastern Cape Province. South African Journal of Marine Science 3: 111-118.
- Carter, A.R. and R.J. Anderson. 1986. Seasonal growth and agar contents in *Gelidium pristoides* (Gelidiales, Rhodophyta) from Port Alfred, South Africa. Botanica Marina 29: 117-123.
- Carter, A.R. and R.H. Simons.1987. Regrowth and production capacity of *Gelidium pristoides* (Gelidiales, Rhodophyta) under various harvesting regimes at Port Alfred, South Africa. Botanica Marina 30: 227-231.
- Carter, A.R. and R.J. Anderson. 1991. Biological and physical factors controlling the spatial distribution of the intertidal alga *Gelidium pristoides* in the eastern Cape Province, South Africa. Journal of the Marine Biological Association of the United Kingdom 71: 555-568.

Published reports

- Water Research Commission. 2006. Profiling Estuary Management in Integrated Development Planning in South Africa with Particular Reference to the Eastern Cape. Project No. K5/1485.
- Turpie J., N. Sihlophe, A. Carter, T, Maswime and S. Hosking. 2006. Maximising the socio-economic benefits of estuaries through integrated planning and management: A

rationale and protocol for incorporating and enhancing estuary values in planning and management. Un-published Water Research Commission Report No. K5/1485

Conference Proceedings

- Carter, A.R. 2002. Climate change and emission inventories in South Africa. Invited plenary paper at the 5th International System Auditors Convention, Pretoria. Held under the auspices of the South African Auditor & Training Certification Association Conference (SAATCA).
- Carter, A.R. 2003. Accounting for environmental closure costs and remediation liabilities in the South African mining industry. Proceedings of the Mining and Sustainable Development Conference. Chamber of Mines of South Africa, Vol. 2: 6B1-5
- Carter, A.R. and S. Fergus. 2004. Sustainability analysis of wastewater treatment options on the West Bank of East London, Buffalo City. Proceedings of the Annual National Conference of the International Association for Impact Assessment, South African Affiliate: Pages 295-301.
- Carter, A., L. Greyling, M. Parramon and K. Whittington-Jones. 2007. A methodology for assessing the risk of incurring environmental costs associated with port activities. Proceedings of the 1st Global Conference of the Environmental Management Accounting Network.
- Hawley, GL, AR McMaster and AR Carter. 2009. Carbon, carbon stock and life-cycle assessment in assessing cumulative climate change impacts in the environmental impact process. Proceedings of the Annual National Conference of the International Association for Impact Assessment, South African Affiliate.
- Hawley, GL, AR McMaster and AR Carter. 2010. The Environmental and Social Impact Assessment and associated issues and challenges. African, Caribbean and Pacific Group of States (ACP), Science and Technology Programme, Sustainable Crop Biofuels in Africa.
- Carter, AR. 2011. A case study in the use of Life Cycle Assessment (LCA) in the assessment of greenhouse gas impacts and emissions in biofuel projects. 2nd Environmental Management Accounting Network- Africa Conference on Sustainability Accounting for Emerging Economies. Abstracts: Pages 69-70.

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

ALAN ROBERT CARTER Date: 28 January 2022

ROBYN THOMSON
Curriculum Vitae

CONTACT DETAILS

Name of Company	**CES – Environmental and Social Advisory Services**
Designation	Principal Environmental Consultant
Profession	Environmental Consultant
Years with firm	2
E-mail	r.thomson@cesnet.co.za
Office number	+27 (0)43 726 7809
Nationality	South African
Professional Affiliations	International Association of Impact Assessment (IAIAsa) Environmental Assessment Practitioners Association of South Africa - Interim Certification Board (EAPSA)
Key areas of expertise	• Environmental Impact Assessments: Basic and Full Scoping & EIR • Environmental Management Plans • Environmental Feasibility Studies • Water Use Licensing • Public Participation and Stakeholder Engagement • Construction Compliance Monitoring • Environmental and Social Due Diligence • Auditing / Compliance Monitoring • Environmental Risk Management • Geographical Information Systems and Mapping

PROFILE

Ms Robyn Thomson

Robyn Thomson is a Senior Environmental Consultant and holds a BSc (Environmental Science) degree with majors in Archaeology, Environmental and Geographical Science, as well as a BSc (Hons.) in Environmental Science, with coursework in Environmental Management, Environmental Impact Assessment, Environmental Risk Assessment, Environmental Contamination Rehabilitation, Geographic Information Systems and fundamentals in Statistics. The Honours programme also entailed a research project, which looked at the effectiveness of the community awareness programme conducted by the Asbestos Interest Group (AIG) on the effects of and attitudes towards asbestos contamination in two rural communities, Heuningvlei and Ga-Mopedi respectively, in the Northern Cape Province. The research project formed part of a larger project quantifying the extent of secondary environmental asbestos contamination in South Africa. Robyn obtained her undergraduate degree at the University of Cape Town, and her Honours degree at Rhodes University. Robyn has 15 years of experience and expertise in Basic Assessments, Environmental Impact Assessments, Environmental Monitoring, Environmental Management Plans, Water Use Licencing, public participation, GIS and project coordination. Robyn has particularly strong experience in infrastructure projects for various municipal, provincial and national organisations. Robyn is working in the field of environmental and social management for large aquaculture-related developments, and Mining and Renewable Energy projects (wind energy facilities) within South Africa. She is currently employed in the East London Office of CES.

EMPLOYMENT EXPERIENCE

Principal Environmental Consultant – Coastal and Environmental Services (East London)
August 2022 – Present

Senior Environmental Consultant – Coastal and Environmental Services (East London)
March 2020 – August 2022

- Developing EIAs
- Developing Environmental Management Plans & Programmes
- Conducting Site Assessments
- Mining License Applications
- Construction Environmental Compliance Monitoring
- Client Liaison
- Authority Consultation
- Facilitating Public Participation & Stakeholder Engagement
- Technical and Financial Project Management
- Water Use License Applications
- Geographic Information Systems

Environmental Consultant/ Director – Makhetha Environmental Consultants
September 2012 – February 2020

Environmental Scientist – SRK Consulting
October 2006 – August 2010

GIS Technician – Conservation Support Services
August 2004 – September 2006

Environmental Consultant – Greenergy
November 2003 – July 2004

ACADEMIC QUALIFICATIONS

- 2003 - B.Sc. Environmental and Geographical Science, and Archaeology (UCT)
- 2007 - B.Sc. (Hons) Environmental Science (Rhodes)

CONTINUING PROFESSIONAL DEVELOPMENT

- NOSA Occupational Health and Safety Auditors Course, 2013
- Rhodes University and Coastal and Environmental Services, Introduction to Environmental Impact Assessment, 2006.
- Rhodes University Investec Business School, Environmental Risk Assessment, 2006.
- Rhodes University, Introduction to GIS, 2005.
- Regular attendance at Environmental Quality Management Forums and Workshops conducted by the Eastern Cape Provincial Department of Economic Development, Environmental Affairs and Tourism (DEDEAT).

PROFESSIONAL EXPERIENCE

Robyn has been involved in various roles (i.e. lead author, co-author, project manager, reviewer, GIS specialist, public participation) on the following projects:

Environmental Impact Assessments and EMPr's:

- Uitenhage Wood Treatment Plant, Uitenhage, Eastern Cape Province (2006);
- Straits Chemical Chlor-Alkali Plant, Coega, Eastern Cape (2007);
- St Francis Bay Beach Remediation, St Francis Bay, Eastern Cape (2007);
- Woodlands Collector Sewer Upgrade, Port Elizabeth, Eastern Cape (2007)
- Underground Storage Tank Decommissioning, Port Elizabeth, Eastern Cape (2008);
- Underground Storage Tank Decommissioning, Port Alfred, Eastern Cape (2008);
- Motherwell Waste Transfer Station, Motherwell, Eastern Cape (2008);
- Paapenkuils Bulk Sewer Augmentation, Port Elizabeth, Eastern Cape (2007);
- Seaview Bulk Water Supply, Port Elizabeth, Eastern Cape (2008)
- Churchill Pipeline Upgrade, Port Elizabeth, Eastern Cape (2008)
- Kwazakhele Collector Sewer Upgrade, Port Elizabeth, Eastern Cape (2008);
- Amanzi Reservoir and Pipeline, Port Elizabeth, Eastern Cape (2008);
- Markman Wastewater Ponds, Port Elizabeth, Eastern Cape (2009);
- Nelson Mandela Bay Municipality Kwazakhele Road Upgrade, Eastern Cape (2009);
- Nooitgedagt/ Coega Low Level Water Supply Scheme, Port Elizabeth, Eastern Cape (2009)
- Uitenhage Reclaimed Effluent System Upgrade, Port Elizabeth, Eastern Cape (2010)
- Witteklip Bulk Water Supply and Wastewater Treatment Works, Port Elizabeth, Eastern Cape (2009)
- TR15 Road Upgrade, Matatiele Local Municipality, Eastern Cape (2010);
- Fibre Optic Data Cable, Boemfontein to Graaff-Reinet, George to Port Elizabeth, Port Elizabeth to Colesberg, Aliwal North to East London, Free State, Western Cape, Northern Cape and Eastern Cape, (2011);
- R61 Section 6 Road Upgrade, Engcobo Local Municipality, Eastern Cape, (2012);
- Centane Kei River Mouth Road Upgrade, Mnquma Local Municipality, Eastern Cape, (2012);
- R61 Section 2 Road Upgrade, Inxuba Yethemba Local Municipality, Eastern Cape (2012);
- Whittlesea Borrow Pits, Lukhanji Local Municipality, Eastern Cape, (2012);
- R61 Section 8 Road Upgrade, Port St Johns Local Municipality, Eastern Cape, (2012);

- N1 Section 14 Road Upgrade, Kapanong Local Municipality, Free State, (2012);
- DR08017 (Sections 2B and 2C) Road Upgrade, Matatiele Local Municipality, Eastern Cape (2012);
- Masbulele Trading, Fuel Transportation Environmental Management Plan, Queenstown, Eastern Cape (2013);
- R61 Section 6 Road Upgrade, Intsika Yethu Local Municipality, Eastern Cape (2014);
- Design of Dust Control System for the K24 Tunnel, Richards Bay Port, uMhlathuze Local Municipality, Kwa-Zulu Natal (2015);
- Port of Ngqura Stormwater Management Plan, Coega, Eastern Cape (2017);
- Coffee Bay Bulk Water Supply Phase 3B, Coffee Bay, King Sabata Dalindyebo Local Municipality, Eastern Cape (2019);
- Breidbach Pumpsation and Sewer Line, Breidbach, Buffalo City Metropolitan Municipality, Eastern Cape (2019);
- Elundini Rural Drought Relief Programme, Wards, 1, 5, 6 and 7, Elundini Local Municipality, Eastern Cape (2019);
- Osner Housing Development, Buffalo City Metropolitan Municipality, Eastern Cape (2020);
- R72 Hamburg Quarry, Nqushwa Local Municipality, Eastern Cape (2020/21);
- R56 Edendale Quarry, Matatiele Local Municipality, Eastern Cape (2020/21);
- Refele Village Sportsfield and Grandstand, Elundini Local Municipality, Eastern Cape (2020/21);
- Great Kei Concrete Tower Manufacturing Facility, Great Kei Local Municipality, Eastern Cape (2020/21);
- Chaba Battery Storage Facility, Great Kei Local Municipality, Eastern Cape (2020/21);
- Sakhisizwe Contractors Water Abstraction; Amahlati Local Municipality, Eastern Cape (2020/21);
- Wenah Housing Development (WULA), Buffalo City Metropolitan Municipality, Eastern Cape (2020);
- Wild Coast Abalone Expansion, Great Kei Local Municipality, Eastern Cape (2020/21);
- Wihananah Graphite Exploration, Inhambane, Cabo Delgado, Mozambique (2021);
- Wild Coast Abalone expansion EIA, Great Kei Local Municipality, Eastern Cape (2020/21);
- Waaihoek Wind Energy Facility, Part 2 Amendment, Kwa-Zulu Natal (2021);
- Haga Haga Wind Energy Facility access roads Basic Assessment, Great Kei Local Municipality, Eastern Cape (2021);
- Kroondal Chrome Mine TSF and WRD redesign Basic Assessment and Water Use Licence, North West Province (2021/2022);
- Lido Avenue residential development, Buffalo City Metropolitan Municipality (2021);
- Seunqu Rural Water Supply Scheme Basic Assessment, Senqu Local

Municipality (2021/2022);
- Latrodex Wind Turbines Basic Assessment, Great Kei Local Municipality, Eastern Cape (2022);
- Glencore Eastern Mines, Thornecliff, Helena & Marageng Mines Water Use Licences, Limpopo Province (2022);
- Buchule residential development Basic Assessment, Buffalo City Metropolitan Municipality (2021);
- Inyathi BESS Basic Assessment, Buffalo City Metropolitan Municipality (2022);
- Mulilo Necastle WEF, Kwa-Zulu Natal (2022);
- Victoria West 5 x WEFs, GIS mapping, Pixley Ka Seme District Municipality, Northern Cape (2022);
- Soyuz Britstown 6 x WEFs, Scoping and EIR, Pixley Ka Seme District Municipality, Northern Cape (2022);
- Eskom Hex BESS, EMPr updating, Western Cape (2022);

Baseline Environmental assessment:
- Florida residential development, Uitenhage, Eastern Cape (2006).
- Coastal Infrastructure Upgrades, Bitou Local Municipality, Western Cape (2020)
- BCMM Stormwater and Sewage Reclamation Feasibility, Buffalo City Metropolitan Municipality (2021/2022);

Environmental auditing, due diligence and compliance monitoring:
- Churchill Pipeline Upgrade, Port Elizabeth, Eastern Cape (2008)
- Kwazakhele Collector Sewer Upgrade, Port Elizabeth, Eastern Cape (2008);
- Amanzi Reservoir and Pipeline, Port Elizabeth, Eastern Cape (2008);
- Nelson Mandela Bay Municipality Kwazakhele Road Upgrade, Eastern Cape (2009); and
- Coffee Bay Bulk Water Supply Phase 3B, Coffee Bay, King Sabata Dalindyebo Local Municipality, Eastern Cape (2019);
- Breidbach Pumpsation and Sewer Line, Breidbach, Buffalo City Metropolitan Municipality, Eastern Cape (2020/21);

Strategic Environmental Assessment:
- Afforestation Potential in Water Management Area 12, Eastern Cape (2005); and
- Environmental Management Framework for the coastal zone between Port Alfred and Kei Mouth, Eastern Cape (2009).

Environmental Contamination Assessment:
- Secondary Asbestos Contamination Survey, Northern Cape, North-West Province, Mpumalanga and Limpopo (2006).

Specialist Geographical Information Systems:
- Chris Hani District Municipality Rural Infrastructure Asset Register, Eastern Cape (2005).

Community Social Development:

- eShowe Bulk Water Supply, uMlalazi Local Municipality, Kwa-Zulu Natal (2014-2017); and
- Department of Education Fencing of 37 rural schools in the OR Tambo and Alfred Nzo District Municipalities, Eastern Cape (2016).

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

Robyn Thomson Date: 5 September 2022

SINENJONGO GCINA

Curriculum Vitae

CONTACT DETAILS

Name of Company	Coastal and Environmental Services (Pty) Ltd
Trading as	CES
Description of Company	Environmental and Social Advisory Services
Designation	Junior Environmental Consultant
Profession	Botanist/Ecologist
Years with firm	7 months
E-mail	Jongo.gcina@cesnet.co.za
Office number	+27 12 426 7306
Mobile	+27 61 131 8699
Nationality	South African
Professional Body	➢ None at this stage
Key areas of expertise	➢ Botany ➢ Specialist management

PROFILE

Sinenjongo is a Junior Environmental Consultant who holds a B.Sc. in Botany and Zoology, a B.Sc. Honours, and MSc in Botany from Nelson Mandela University. Her honours project investigated the growth and survival of the white mangrove, *Avicenna marina*, in the Nxaxo Estuary, South Africa. Her MSc project, through Nelson Mandela University, was a study on the understanding and a description of the short-term postfire regeneration and ecology of the fynbos-thicket vegetation on a coastal dune system in the southeastern Cape Floristic Region. She obtained her MSc in Botany with specializations in plant ecology and postfire regeneration.

Sinenjongo has been working as specialist coordinator for CES for the last 7 months. Through her studies, she established a good foundation concerning plant ecology in marine and terrestrial systems. She has a deep love and appreciation for the natural environment of South Africa, having worked or been involved in both the marine and terrestrial ecology sectors, such as the Institute of Coastal and Marine Research, Thicket Forum, Fynbos Forums and Botanical Society (BotSoc Algoa Branch).

EMPLOYMENT EXPERIENCE

- 2023 – Present: Junior Environmental Consultant, Coastal and Environmental Services (Pty) Ltd.
- 2022 – 2023: Research Assistant, Institute for Coastal and Marine Research, Nelson Mandela University
- 2021 – 2022: BotSoc Algoa Branch secretary
- 2018 – 2023: Thicket Forum Secretary, Nelson Mandela University
- 2018: Research Assistant, Nelson Mandela University, NRF Intern
- 2016 – 2021: Research Supervisor, Nelson Mandela University

ACADEMIC QUALIFICATIONS

- 2019 – 2022: MSc Botany, Nelson Mandela University
- 2017: BSc Hons Botany, Nelson Mandela University
- 2012 – 2016: BSc Biological Sciences, Nelson Mandela University
- 2007 – 2011: Matric, Stirling High School

COURSES

- None at this stage

CONSULTING EXPERIENCE

- None at this stage

PUBLICATIONS

- None at this stage

CONFERENCE PROCEEDINGS

- **Thicket Forum 2022, Addo Elephant Park, Eastern Cape**
  MSc presentation: "Beauty from Ashes: short-term postfire regeneration of dune fynbos-thicket vegetation in the southern."

- **Fynbos Forum, Baarskeerderbos, Western Cape**
  MSc Poster presentation: "Beauty from Ashes: Postfire regeneration and phenology in a coastal dune landscape of the south-eastern Cape Floristic Region."

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes me, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

SINENJONGO GCINA Date: JANUARY 2024

APPENDIX 3: NATIONAL SCREENING TOOL REPORT A4 SENSITIVITY MAPS

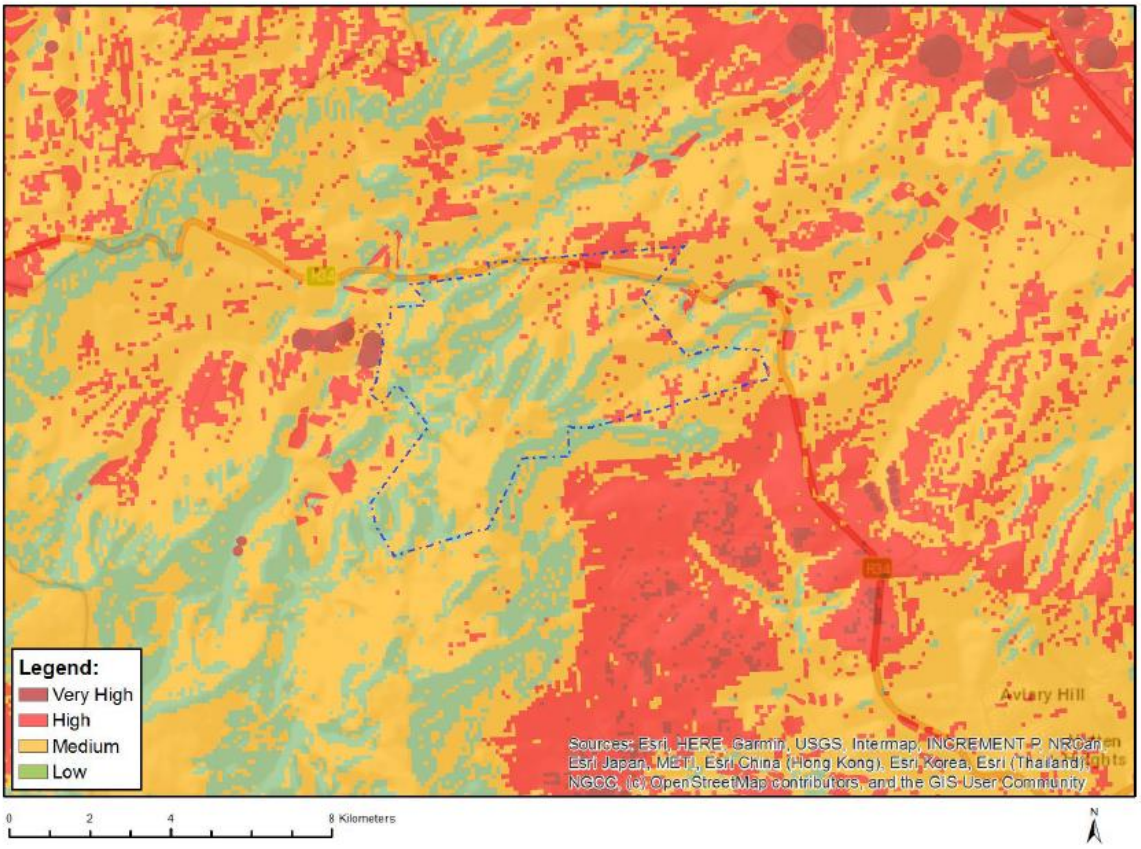
Proposed Mulilo Newcastle Wind Power (Pty) Ltd - 200 MW Wind Energy Facility

THEME	VERY HIGH SENSITIVITY	HIGH SENSITIVITY	MEDIUM SENSITIVITY	LOW SENSITIVITY	SENSITIVITY FEATURES
AGRICULTURE THEME	X				High Land capability;09. Moderate-High/10. Moderate-High Low Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low Medium Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate Very High Pivot Irrigation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
ANIMAL SPECIES THEME		X			High: Aves-Eupodotis senegalensis; Aves-Sylvia nigricapillus; Aves-Balearica regulorum; Aves-Falco biarmicus; Aves-Heteromirafra ruddi; Aves-Sagittarius serpentarius; Aves-Geronticus calvus Medium: Aves-Circus ranivorus; Aves-Sylvia nigricapillus; Aves-Spizocorys fringillaris; Aves-Ciconia nigra; Aves-Neotis denhami; Aves-Balearica regulorum; Aves-Eupodotis senegalensis; Aves-Grus carunculate; Aves-Anthus chloris; Aves-Tyto capensis; Mammalia-Chrysospalax villosus; Mammalia-Hydrictis maculicollis; Mammalia-Ourebia ourebi ourebi; Invertebrate-Clonia lalandei
AQUATIC BIODIVERSITY THEME	X				Low: Low sensitivity Very High: Aquatic CBAs: Strategic water source area; Wetlands and Estuaries; Freshwater ecosystem priority area quinary catchments
ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME				X	Low: Low sensitivity

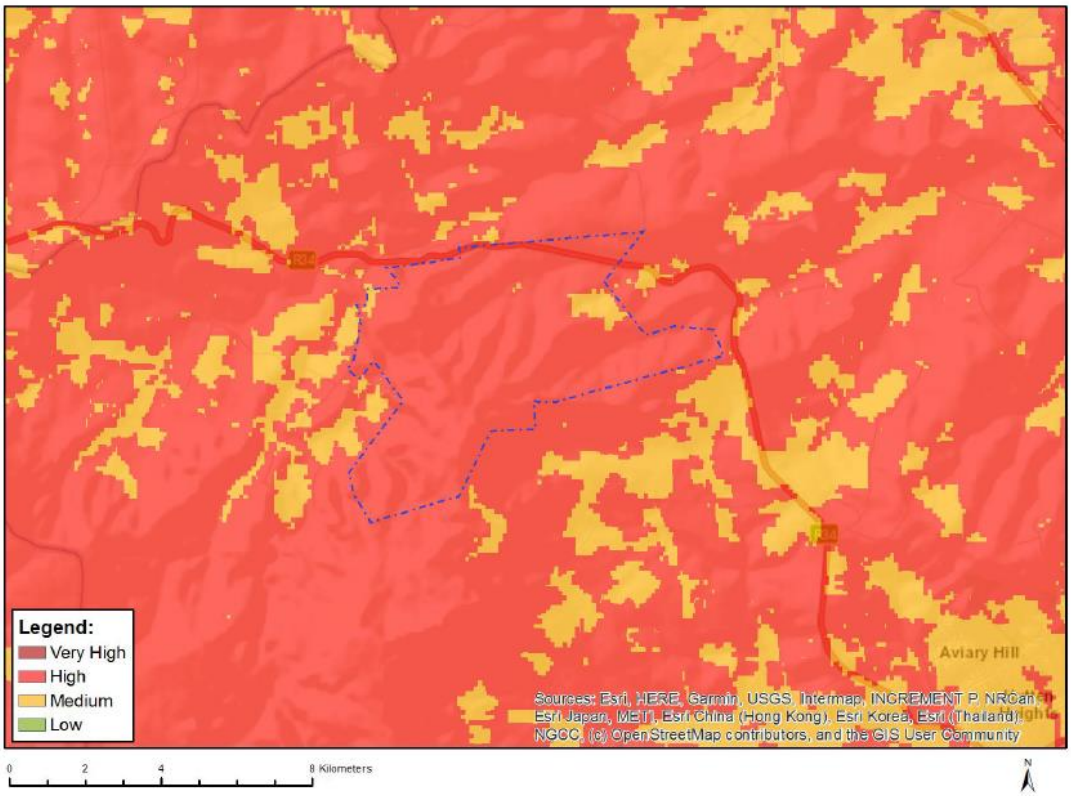
Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity	Sensitivity Features
Avian (Wind) Theme				X	Low: Area Outside Sensitivities
Bats (Wind) Theme		X			High: Within 500 m of a river; Wetland: Within 500 m of a wetland Medium: Croplands
Civil Aviation Theme			X		Low: Low sensitivity Medium: Between 8 and 15 km of other civil aviation aerodrome
Defence (Wind) Theme				X	Low: Low sensitivity
Flicker Theme	X				Low: Area of low sensitivity Very High: Potential temporarily or permanently inhabited residence
Landscape (Wind) Theme	X				High: Between 3 and 5 km of a nature reserve, botanical garden or other protected area: Slope between 1:4 and 1:10 Low: Slope less than 1:10 Medium: Between 5 and 10 km of a nature reserve, botanical garden or other protected area Very High: Slope more than 1:4: Mountain tops and high ridges
Palaeontology Theme	X				High: Features with a High paleontological sensitivity Very High: Features with a Very High paleontological sensitivity
Noise Theme	X				Very High: Potential temporarily or permanently inhabited residence Low: Area of Low sensitivity
Plant Species Theme			X		Low: Low Sensitivity Medium: Ocotea bullat; Sensitive species 1252; Lotononis amajubica; Sensitive species 998; Sensitive species 1248; Sensitive species 851;Prunus africana
RFI (Wind) Theme				X	Low: Low sensitivity for telecommunications; None; More than 60 km from a Weather Radar installation
Terrestrial Biodiversity Theme	X				Low: Low Sensitivity Very High: Critical biodiveristy area 1: Critical biodiveristy area 2: Ecological support area: FEPA

THEME	VERY HIGH SENSITIVITY	HIGH SENSITIVITY	MEDIUM SENSITIVITY	LOW SENSITIVITY	SENSITIVITY FEATURES
					Subcatchments: Protected Areas Expansion Strategy: Strategic Water Source Areas

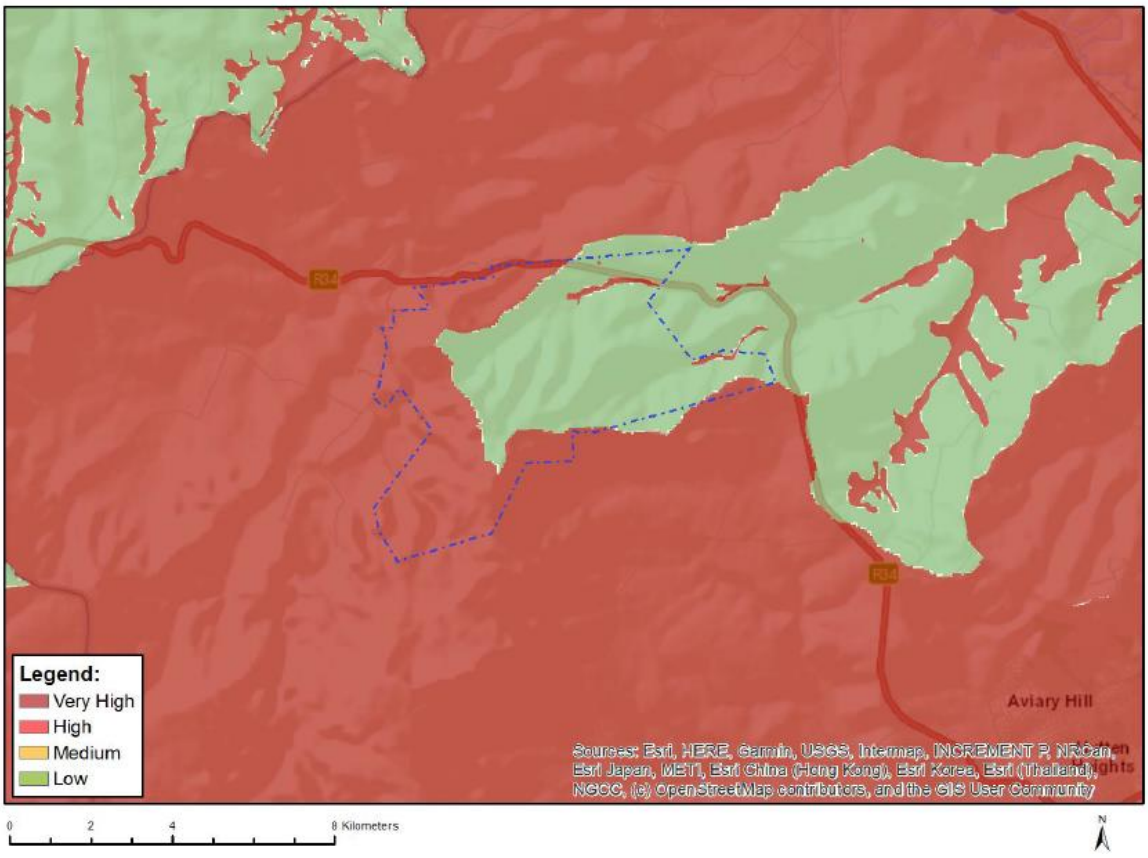
MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY



MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY

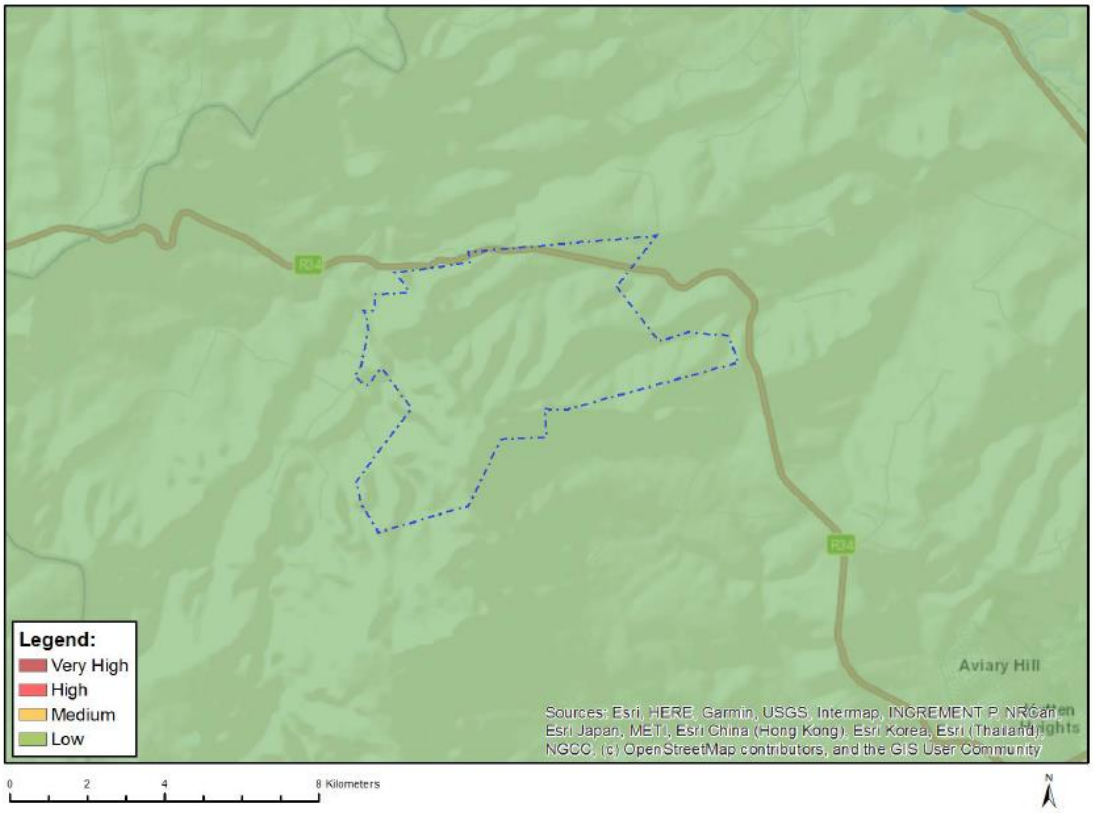


MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

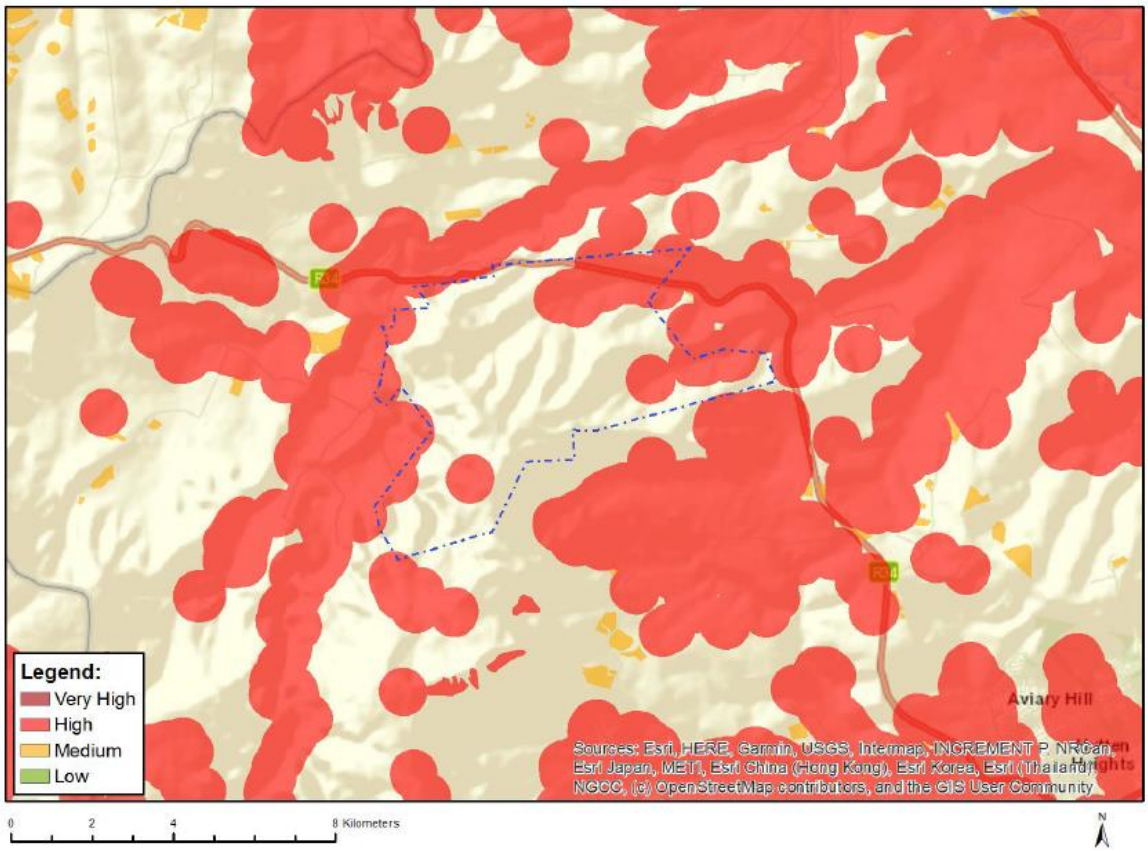


MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

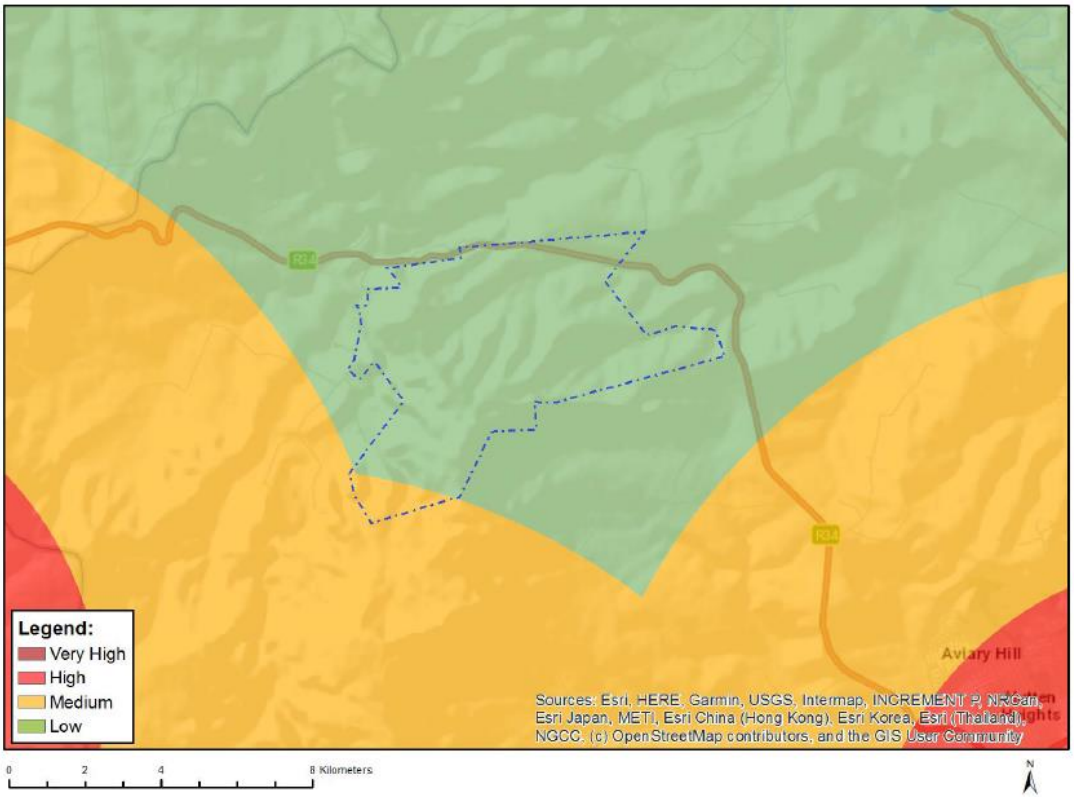
MAP OF RELATIVE AVIAN (WIND) THEME SENSITIVITY



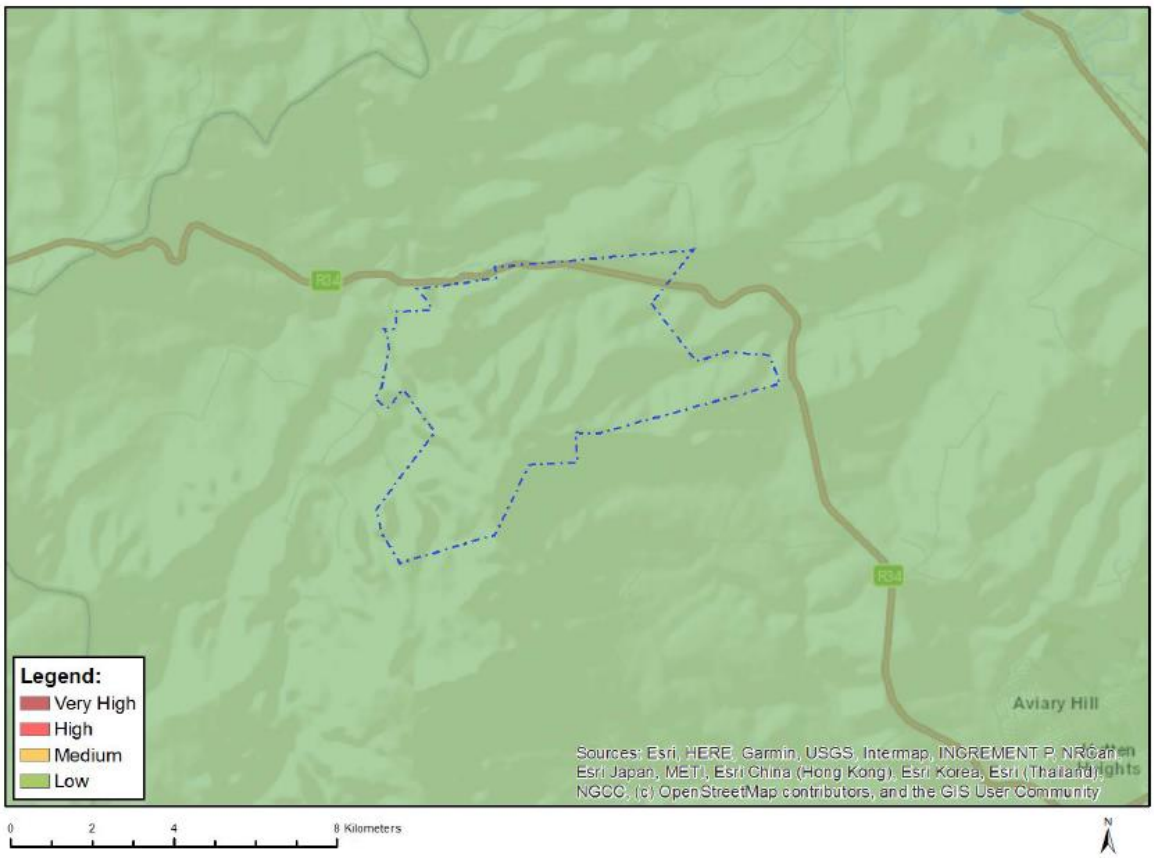
MAP OF RELATIVE BATS (WIND) THEME SENSITIVITY



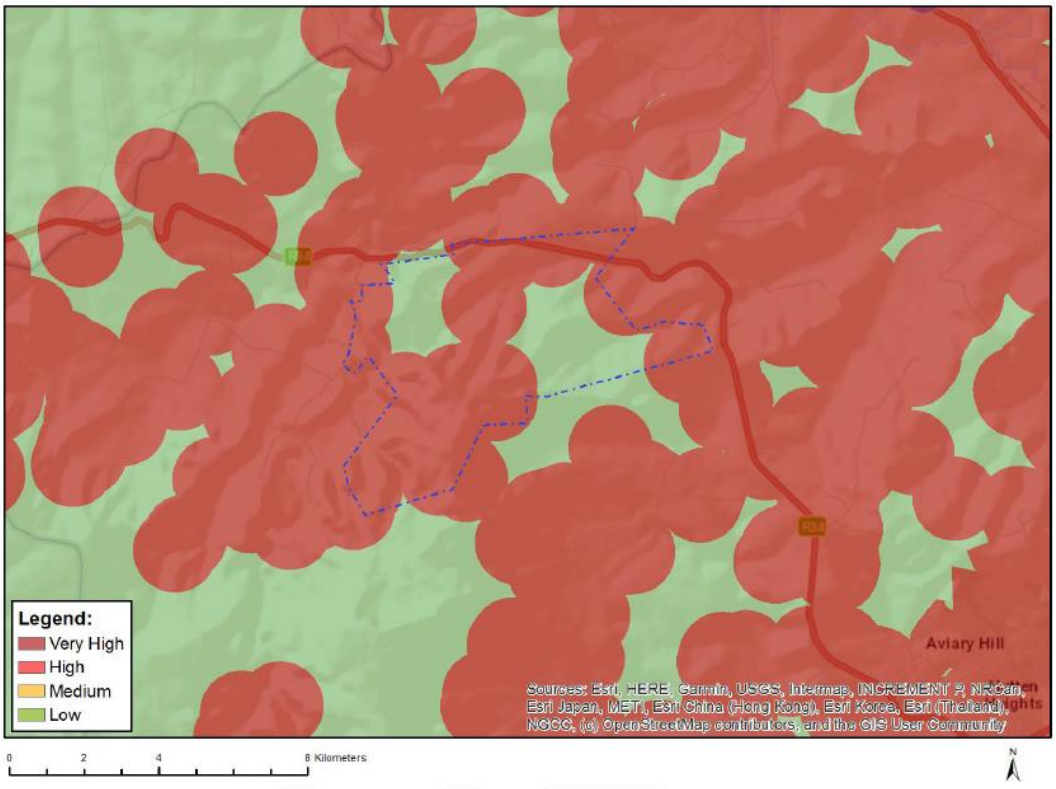
MAP OF RELATIVE CIVIL AVIATION (WIND) THEME SENSITIVITY



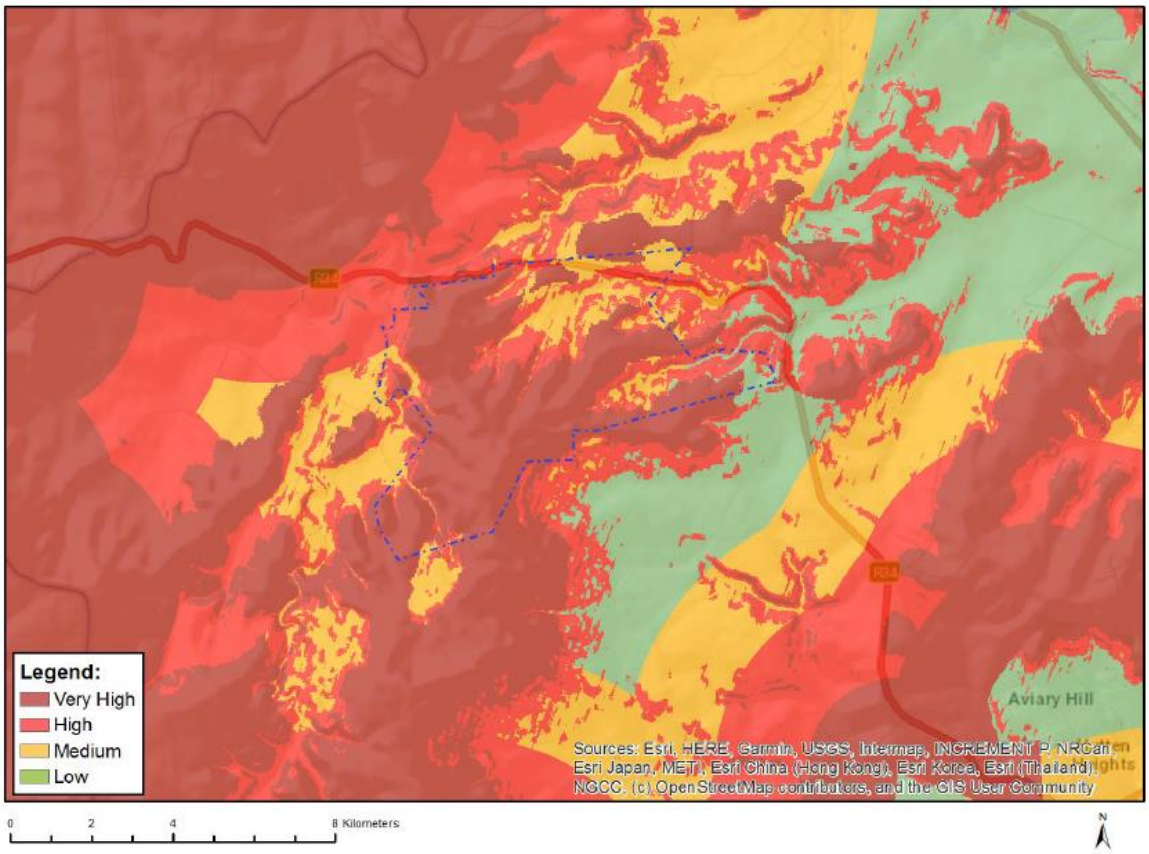
MAP OF RELATIVE DEFENCE (WIND) THEME SENSITIVITY



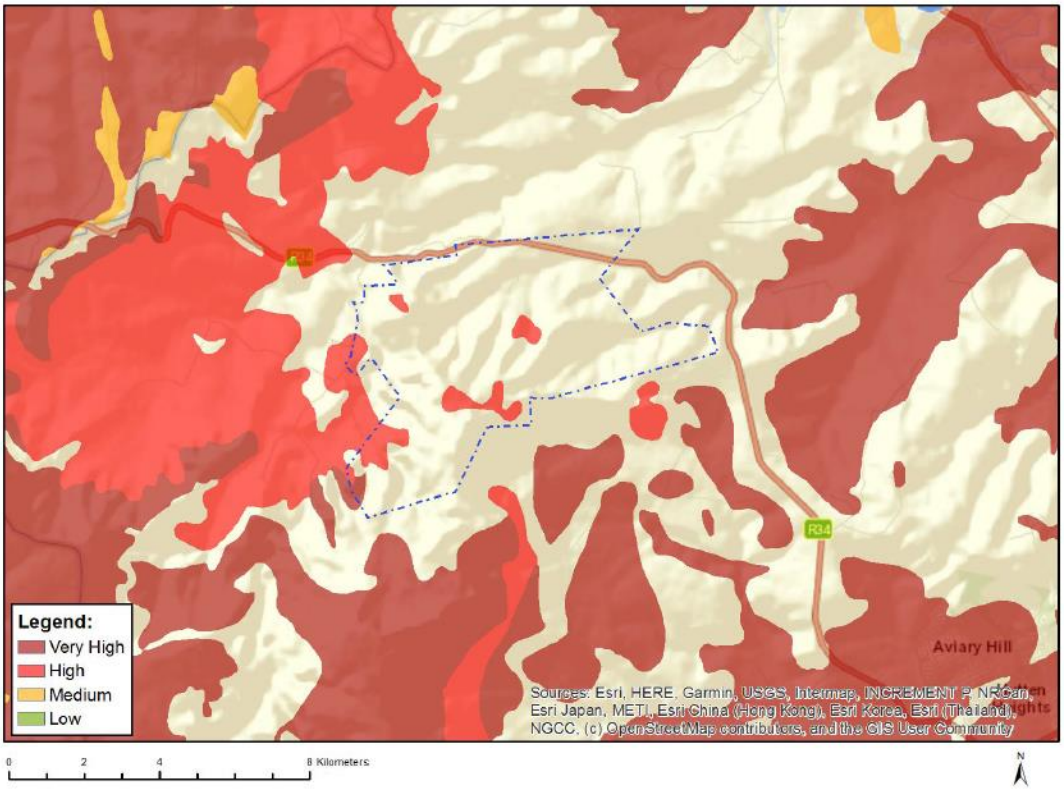
MAP OF RELATIVE FLICKER THEME SENSITIVITY



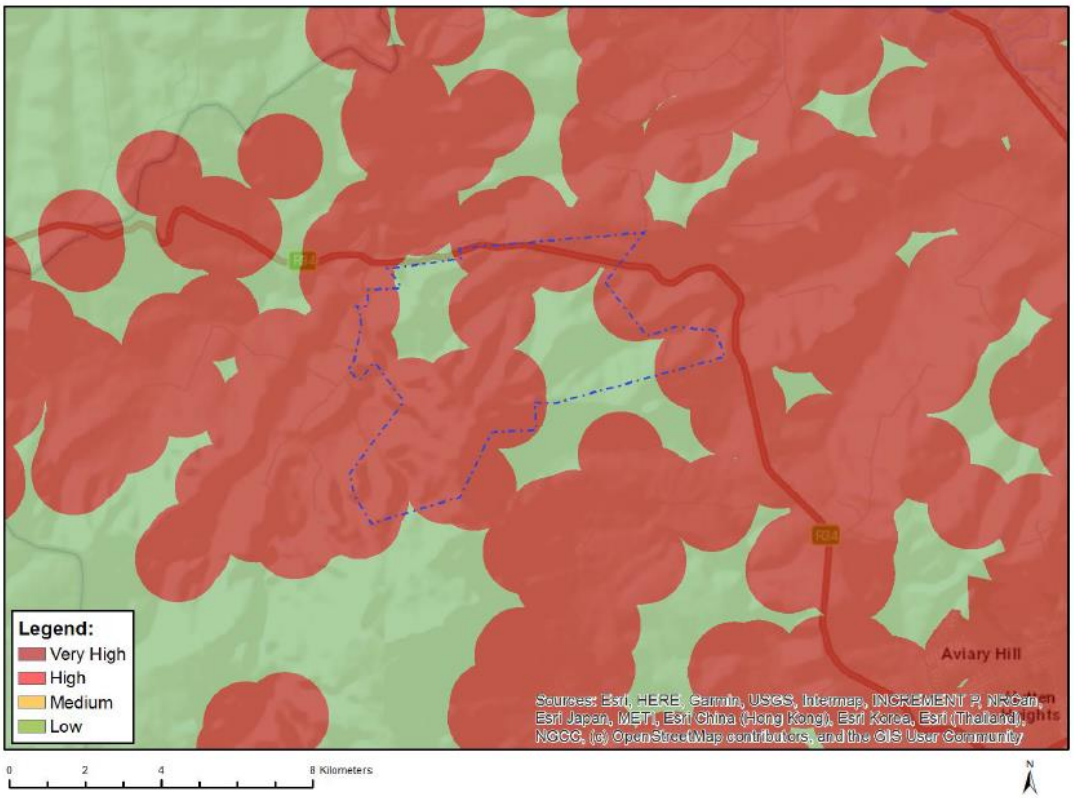
MAP OF RELATIVE LANDSCAPE (WIND) THEME SENSITIVITY



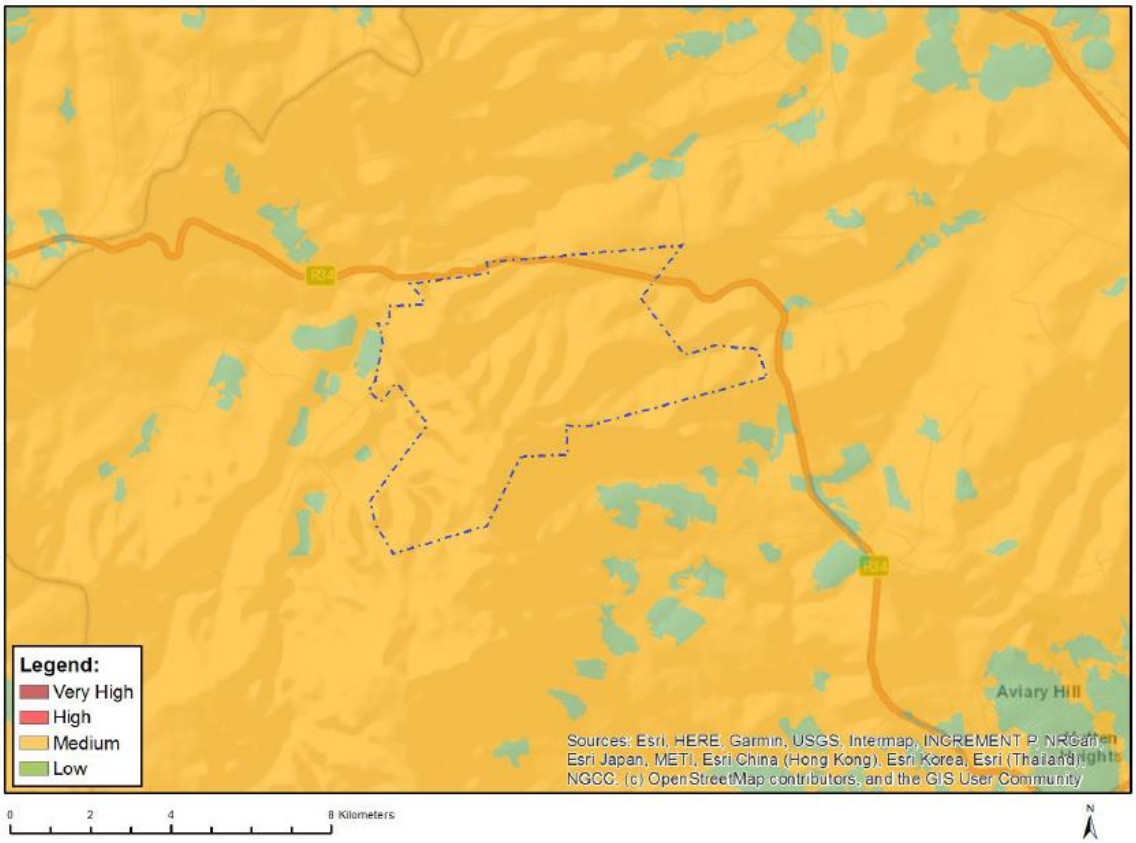
MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY



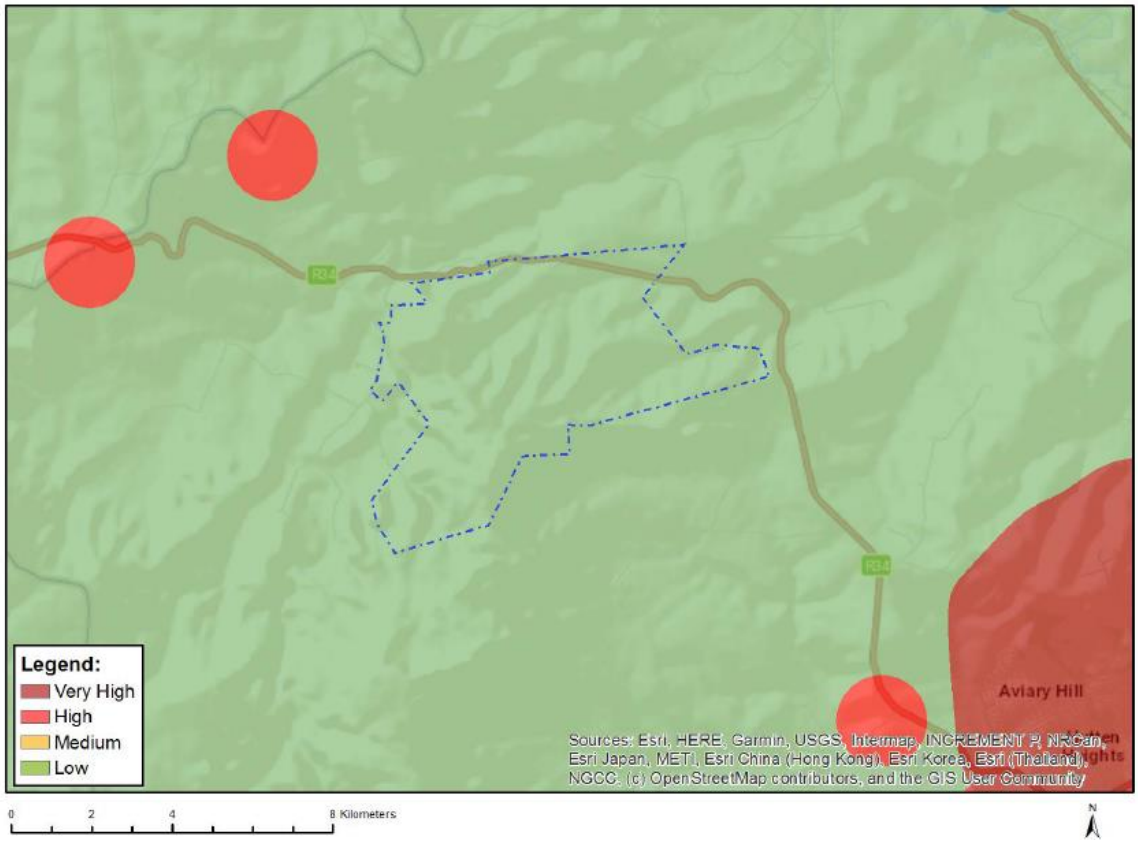
MAP OF RELATIVE NOISE THEME SENSITIVITY



MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



MAP OF RELATIVE RFI (WIND) THEME SENSITIVITY



MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY