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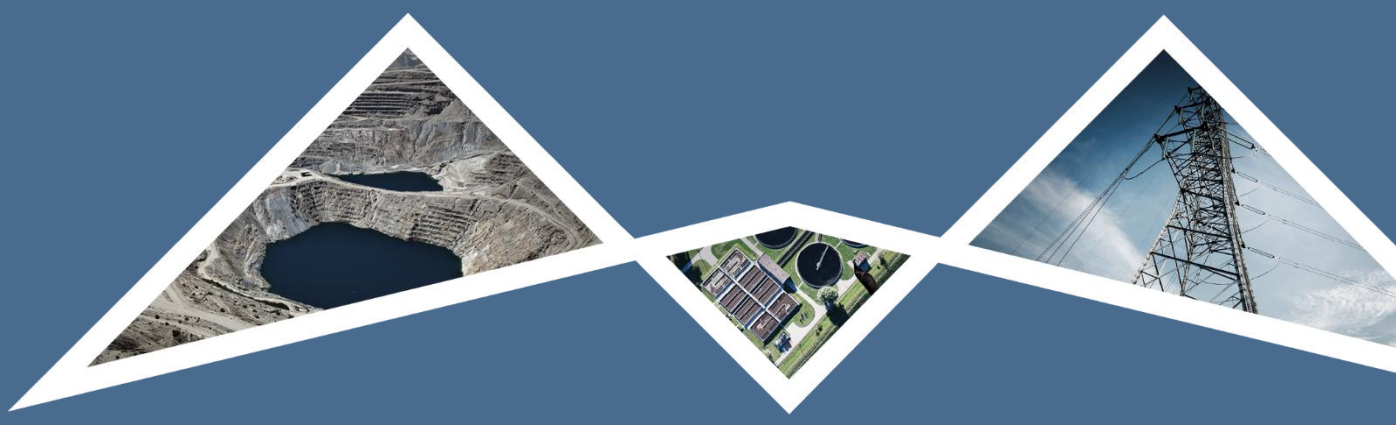
ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED GENADE BOERDERY MIDDELPLAATS PIVOT PROJECT



DOCUMENT DETAILS

EIMS REFERENCE:	1683
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REVISION AND AMENDMENTS

REVISION DATE:	REV #	DESCRIPTION
2025/09/26	ORIGINAL DOCUMENT	Environmental Management Programme

Table of Contents

List of Figures

List of Tables

Appendices

List of Abbreviations

DAERL	Department of Agriculture, Environmental Affairs, Rural Development and Land Reform
DFFE	Department of Forestry Fisheries and the Environment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIMS	Environmental Impact Management Services (Pty) Ltd
EMPr	Environmental Management Programme
EO	Environmental Officer
ERAP	Emergency Response Action Plan
IPM	Integrated Pest Management
NCNCA	Northern Cape Nature Conservation Act (No. 9 of 2009)
NEM:BA	National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
NEMA	National Environmental Management Act (Act 107 of 1998)
NHRA	National Heritage Resources Act (Act 25 of 1999)
NWA	National Water Act, 1998 (Act 36 of 1998 – NWA)
PPP	Public Participation Process
SAHRA	South African Heritage Resources Agency

Definitions

Clearing means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified.

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 EMPr and that Method Statements are implemented as described.

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.

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 Environmental Control Officer (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 shall cover applicable details with regard to:

i. Construction procedures;

ii. Plant, materials and equipment to be used;

iii. Transporting the equipment to and from site;

iv. How the plant/ material/ equipment will be moved while on site;

v. How and where the plant/ material/ equipment will be stored;

vi. The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;

vii. Timing and location of activities;

viii. Compliance/ non-compliance; and

ix. Any other information deemed necessary by the Project Manager.

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

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.

1 INTRODUCTION

Genade Boerdery (Pty) Ltd (hereafter referred to as the applicant) has appointed Environmental Impact Management Services (EIMS) as the Environmental Assessment Practitioner (EAP) to assist with undertaking the necessary authorisation processes, including compiling the necessary reports and undertaking the statutory consultation processes, in support of the application for:

- Environmental Authorisation (EA) in accordance with the National Environmental Management Act (Act 107 of 1998) (NEMA) Listed activity:
    - GNR 984 (2014, as amended) Activity 15:

      "The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for-

      (i) the undertaking of a linear activity; or

      (ii) maintenance purposes undertaken in accordance with a maintenance management plan."

Genade Boerdery wishes to create 8 new cultivation (pivot) areas for the cultivation of potatoes. The development of these pivots will occur in phases over the course of 5 years. The crops will be rotated to prevent blight and allow for conservation of the soil. Once the planting cycle for a pivot area is completed, the area will be reseeded with grazing grasses for cattle. Seven of the new cultivation areas will each cover 60 hectares and one will cover 50 hectares, resulting in a total of ~470 hectares of indigenous vegetation clearance by the end of the five-year period. Irrigation requirements will be met using the applicant's licensed water use (File Number 27/2/C92B/250J5466/104KBY/0-35) which authorizes the taking of water from the Vaal River system for irrigation of up to 60 hectares. No additional water resources will be required as only one crop area will be planted at a time.

The proposed project is located on the farm Middel Plaats South No. 104, Sol Plaatje Local Municipality, Northern Cape. The site is approximately 8 km south of Schmidtsdrif. The centre point of the site is approximately 28°47'8.10"S, 24° 4'29.24"E.

An Environmental Management Programme (EMPr) is an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts during the applicable phases of a development or activity are prevented, and that the positive benefits of the projects are enhanced. This EMPr has been compiled as a guideline for the mitigation and management measures to be implemented to avoid, reduce and minimise potential environmental impacts arising out of the project, and to ensure that the Applicant (Genade Boerdery) complies with relevant environmental legislation and guidelines. This EMPr has been developed according to the National Environmental Management Act 107 of 1998 (NEMA) principles and contains all the relevant information required in terms of Appendix 4 of the Environmental Impact Assessment (EIA) Regulations (2014) promulgated in terms of the NEMA. The Generic EMPrs gazetted by the Department of Forestry Fisheries and the Environment (DFFE) have been used as a reference in the compilation of this EMPr, and have been amended and supplemented where necessary.

1.1 SCOPE AND PURPOSE OF THIS DOCUMENT

The purpose of the EMPr is to give effect to precautionary and mitigatory measures, which are to be put in place for controlling the activities that take place during the project's construction, operational and decommissioning and rehabilitation phases. The EMPr also provides guidance to assist in ensuring compliance with relevant national legislative and regulatory requirements.

It should be borne in mind, however, that the EMPr is a working document that should be updated on a regular basis, as and when necessary. Formal risk identification forms an integral part of EMPr management and assists with prioritizing and focusing the control of risks. The EMPr thus supports this on-going proactive mitigation and the duty of care to the environment. The EMPr shall therefore allow for risk minimization, rather than just

ensuring legal compliance. The purpose of this EMPr is thus also to allow the user to make minor amendments to ensure continual revision and improvement of risk mitigation through the continual re-assessment of risks associated with the activity.

1.2 PROJECT DESCRIPTION

The sub-sections below provide an overview of the project area and the activities proposed to be undertaken as part of this project.

1.2.1 DESCRIPTION OF THE PROJECT AREA

Table 1 indicates the details of the project area for the proposed project including details on the project location as well as the distance from the proposed project area to the nearest towns. The proposed infrastructure is located on one farm portion, as described in the table below. A locality map is provided in **Figure 1**.

Table 1: Project Locality Details.

Project Area	The proposed project is located on the parent farm Middel Plaats South No. 104, Sol Plaatje Local Municipality, Northern Cape. The site is approximately 8 km south of Schmidtsdrif. The centre point of the site is approximately 28°47'8.10"S, 24° 4'29.24"E.
Application Area (ha)	Approximately 470 hectares
Cadastral description	**Farm Name:** Middel Plaats South No. 104 **21-Digit SG Code:** C03700000000010400000
Province	Northern Cape
District Municipality	Frances Baard District Municipality
Local Municipalities	Sol Plaatje Local Municipality

1.2.2 DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

The development of the pivots will occur in phases over the course of 5 years. The crops will be rotated to prevent blight and allow for conservation of the soil. The applicant has an existing lawful water use for the irrigation up to 60 hectares, and only one crop will be irrigated at a time. Once the planting cycle for a pivot area is completed, the area will be reseeded with rain-fed grazing grasses for cattle.

Two pivot areas can be cleared and planted with seed potato per year – one pivot in September and one in December – all of the pivots will be developed by the end of the 5-year period. Following the 5-year period, the pivots will be rotated, for example, the grazing grasses in Pivot 1 will be cleared for the planting of seed potato in December of that year, followed by Pivot 2 in September of the following year, and so on. The proposed pivot layout is shown in **Figure 2**.

1.2.2.1 PRE-CONSTRUCTION PHASE ACTIVITIES

Pre-construction activities may include, but are not limited to the following:

- Surveying and pegging of the site (pivot) and determining any no-go areas;
- Erecting temporary barriers/fencing around no-go areas and putting up signage;
- Delivery of construction materials, equipment, vehicles and machinery;
- Notifying adjacent land owners regarding the planned construction activities;
- Ensuring all relevant documentation is approved and in the site file; and

- Induction and induction environmental awareness training.

1.2.2.2 CONSTRUCTION PHASE ACTIVITIES

Construction activities may include, but are not limited to the following:

- Transportation of staff to and from the site;
- Delivering construction materials and other machinery to the site;
- Waste generation and disposal;
- Removal of rubble;
- Initial removal of natural vegetation and trees for establishing the initial pivots;
- Laying water pipelines and electrical cables from the pumphouse to the pivot centre;
- Soil preparation;
- Cement mixing;
- General construction of pivot irrigation systems; and
- Clearing of grazing grasses from the already established pivot areas for preparation of the next seed potato growing season.

1.2.2.3 OPERATIONAL PHASE ACTIVITIES

Operational phase activities may include, but are not limited to the following:

- Preparation of soil in the pivot area (ripping, applying fertilizers, pre-watering, etc.);
- Transportation of staff, and machinery to and from the site;
- Operating machinery (planting seed potatoes, fertilizers/pesticide applications, potato harvester, etc.);
- Operation of the pivot irrigation system for watering crops (seed potato);
- Application of fertilizers, pesticides, etc., for the maintenance and growth of healthy potato crops;
- General manual labour within the pivot areas;
- Removal of surface infrastructure (pivot irrigation structure); and
- Planting grass following the potato harvest.

1.2.2.4 DECOMMISSIONING/ REHABILITATION PHASE ACTIVITIES

Decommissioning of a pivot is not a high impact process. It will entail removal of the centre pivot system, and associated infrastructure, and allowing natural rehabilitation to occur over time.

Decommissioning/Rehabilitation phase activities may include, but are not limited to the following:

- Removal of all infrastructure and equipment from the site (pivot irrigation systems, water pipelines, electrical cables, etc.);
- Alien invasive species control until the site footprint has been naturally rehabilitated.

Alternatively, the farmer may remove the pivot system and associated infrastructure, and still grow crops without artificial irrigation.

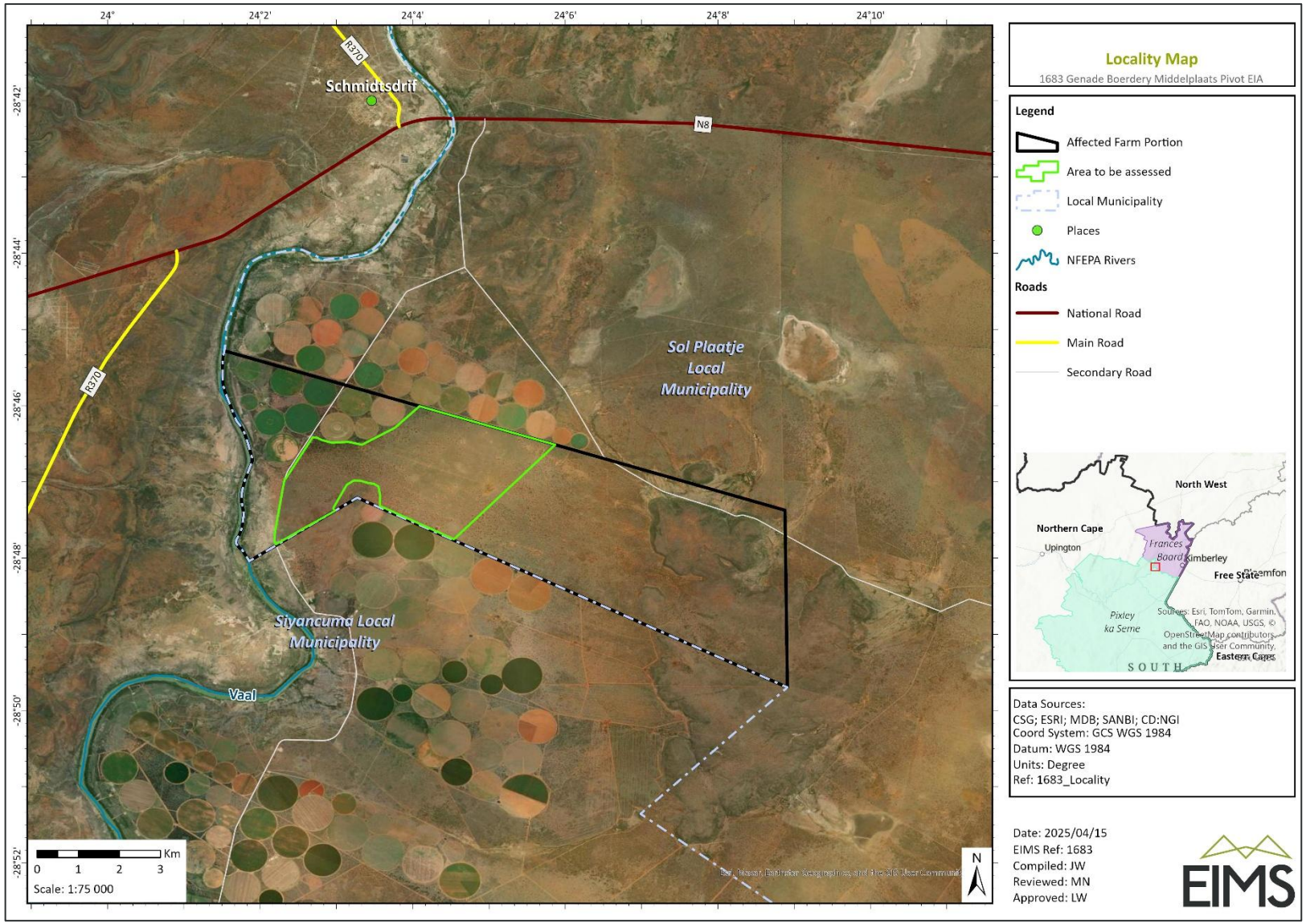

Figure 1: Locality Map.

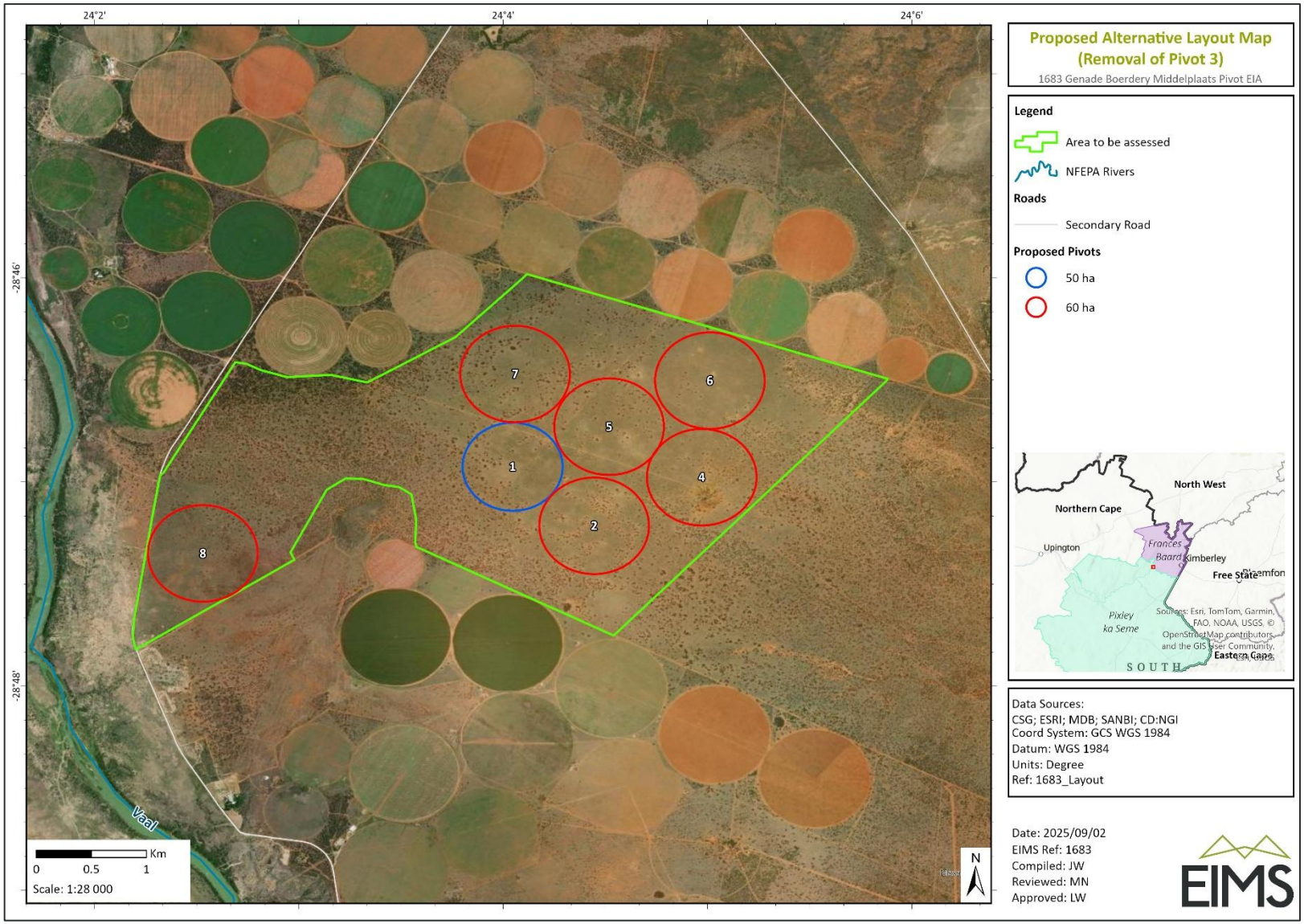

Figure 2: Preferred Pivot Layout Map.

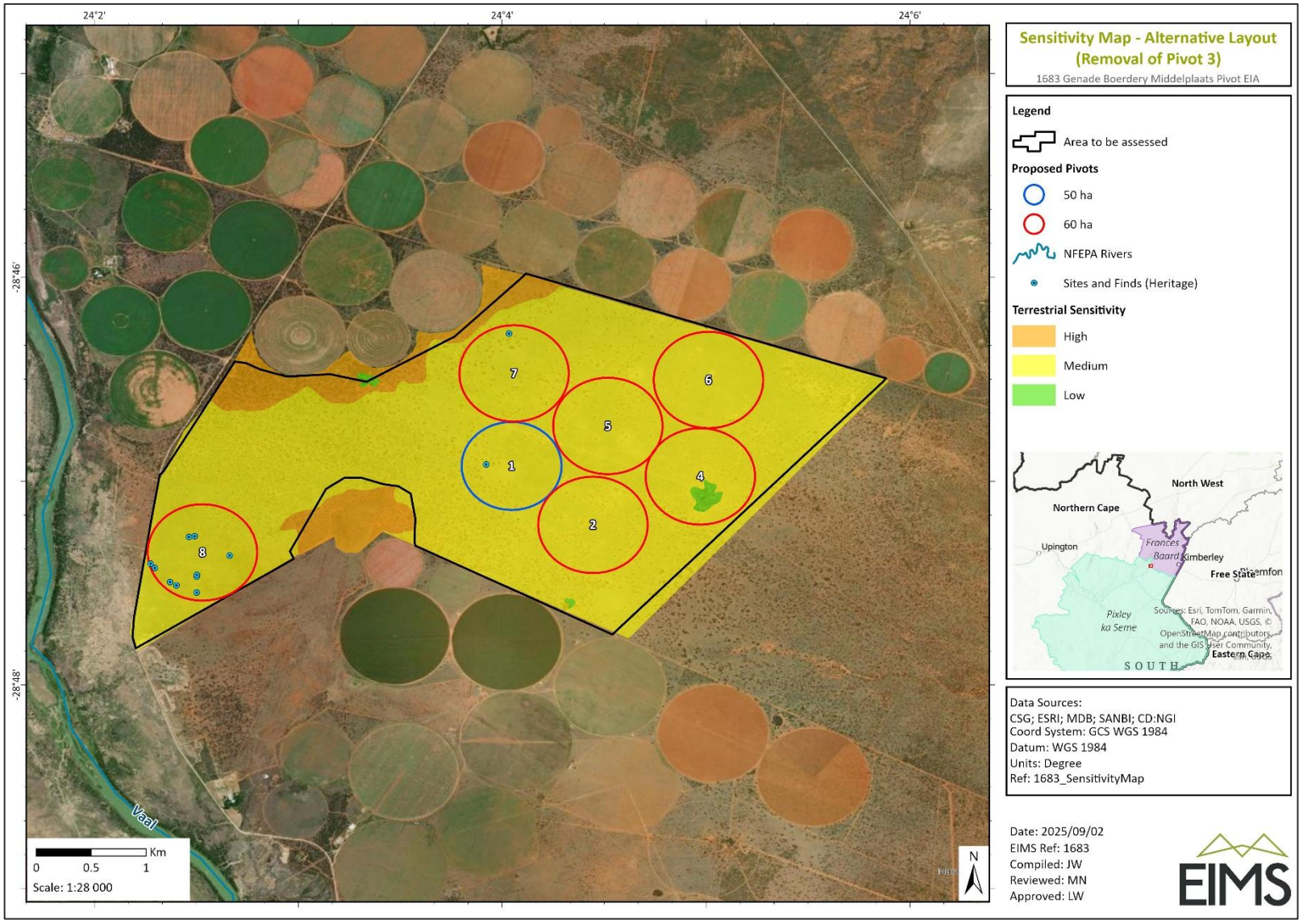

Figure 3: Sensitivity Map.

1.3 DOCUMENT STRUCTURE

This report is an Environmental Management Programme (EMPr) for the proposed Genade Boerdery Middelplaats Pivot project and is compliant with the requirements of the National Environmental Management Act (Act 107 of 1998) (NEMA) Regulations. **Table 2** below provides a summary of the NEMA requirements in terms of Appendix 4 of the Environmental Impact Assessment (EIA) Regulations (GNR 982) (EIA Regulations), and an indication in which section the supporting information and documentation can be found.

Table 2: Report Structure.

Environmental Regulation	Description	Section in Report
NEMA Regulation 982 (2014) Appendix 4		
Appendix 4(1)(1)(a):	Details of – i. The EAP who prepared the EMPr; and ii. The expertise of that EAP to prepare an EMPr, including a curriculum vitae;	**Section 1.4**
Appendix 4(1)(1)(b):	A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	**Section 1.2**
Appendix 4(1)(1)(c):	A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	**Figure 3**
Appendix 4(1)(1)(d):	A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified though the environmental impact assessment process for all phases of the development including – i. Planning and design; ii. Pre-construction activities; iii. Construction activities; iv. Rehabilitation of the environment after construction and where applicable post closure; and v. Where relevant, operation activities;	**Section 7**
Appendix 4(1)(1)(f):	A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable, include actions to – i. Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; ii. Comply with any prescribed environmental management standards or practices; iii. Comply with any applicable provisions of the act regarding closure, where applicable; ands iv. Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.	**Section 7**

Environmental Regulation	Description	Section in Report
Appendix 4(1)(1)(g):	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**Section 7**
Appendix 4(1)(1)(h):	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**Section 7**
Appendix 4(1)(1)(i):	An indication of the persons who will be responsible for the implementation of the impact management actions;	**Section 2** and **Section 7**
Appendix 4(1)(1)(j):	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	**Section 7**
Appendix 4(1)(1)(k):	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	**Section 7**
Appendix 4(1)(1)(l):	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	**Section 3.3**
Appendix 4(1)(1)(m):	An environmental awareness plan describing the manner in which – i. The applicant intends to inform his or her employees of any environmental risk which may result from their work; and ii. Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	**Section 5**
Appendix 4(1)(1)(n):	Any specific information that may be required by the competent authority.	**N/A**

1.4 DETAILS OF THE EAP

Environmental Impact Management Services (Pty) Ltd (EIMS) has been appointed by Genade Boerdery to assist in preparing and submitting the relevant environmental applications, associated reports and documentation, and to undertake a Public Participation Process (PPP) in support of the proposed Middelplaats Pivot EIA project. In terms of Regulation 13 of the EIA Regulations (GN R. 982) as amended, an independent Environmental Assessment Practitioner (EAP), must be appointed by the applicant to manage the application. EIMS and the compiler of this report are compliant with the definition of an EAP as defined in Regulations 1 and 13 of the EIA Regulations, as well as Section 1 of the NEMA. This includes, inter alia, the requirement that EIMS:

- Is objective and independent;
- Has expertise in conducting EIAs;
- Complies with the NEMA, the environmental regulations and all other applicable legislation;
- Considers all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

The details of the EAPs involved in the compilation of this EMPr are as follows:

Table 3: EAP details.

Practitioners	Jolene Webber (Junior EAP)	Monica Niehof (Senior EAP)
Tel No:	+27 11 789 7170	+27 11 789 7170
Fax No:	+27 86 571 9047	+27 86 571 9047
E-mail:	jolene@eims.co.za	monica@eims.co.za
Professional Registrations	EAPASA – Candidate EAP, 2023/7704.	EAPASA – Registered EAP, 2024/8835.

1.4.1 EXPERTISE OF THE EAP

EIMS is a private and independent environmental management-consulting firm that was founded in 1993. EIMS has in excess of 30 years' experience in conducting EIA's. Please refer to the EIMS website (www.eims.co.za) for further details of expertise and experience.

Jolene has served as an Environmental Consultant and GIS Consultant at EIMS since June 2023. Jolene is a registered Candidate EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA). She has actively supported a range of projects in the mining, energy and infrastructure sectors. Her responsibilities have included coordinating Public Participation Processes, serving as a GIS consultant, and contributing to EIAs and Basic Assessments. Jolene also has experience with Water Use License Applications, Site Sensitivity Verification and Screening, Basic Assessments and Environmental Compliance/Auditing and Performance Assessments.

Monica Niehof has 13 years' working experience in the environmental field and 23 years' work experience overall in a variety of fields including the tourism industry. Key experience in the environmental field include Environmental Impact Assessments, Water Use Licence (WUL) Applications, Waste Management Licence (WML) Applications, Atmospheric Emissions Licence (AEL) Applications, Environmental Management Programmes, Public Participation Processes, Environmental Authorisation, AEL and WML Auditing, Environmental Control and Monitoring for a variety of development projects including, residential, retail, mixed-use, commercial, infrastructure, industrial and mining projects.

2 ROLES AND RESPONSIBILITIES

The Applicant will be responsible for ensuring overall compliance with the provisions of the EMPr. Implementation is the key to the success of the EMPr. In order to ensure that the EMPr and its mitigation measures are implemented, roles and responsibilities need to be clearly defined and documented prior to commencement. This section serves as a guide on which party is normally responsible for certain tasks. Specific roles are designated in the specific environmental management and mitigation requirements in this EMPr. A summary of the roles and responsibilities is outlined in **Figure 4** below.

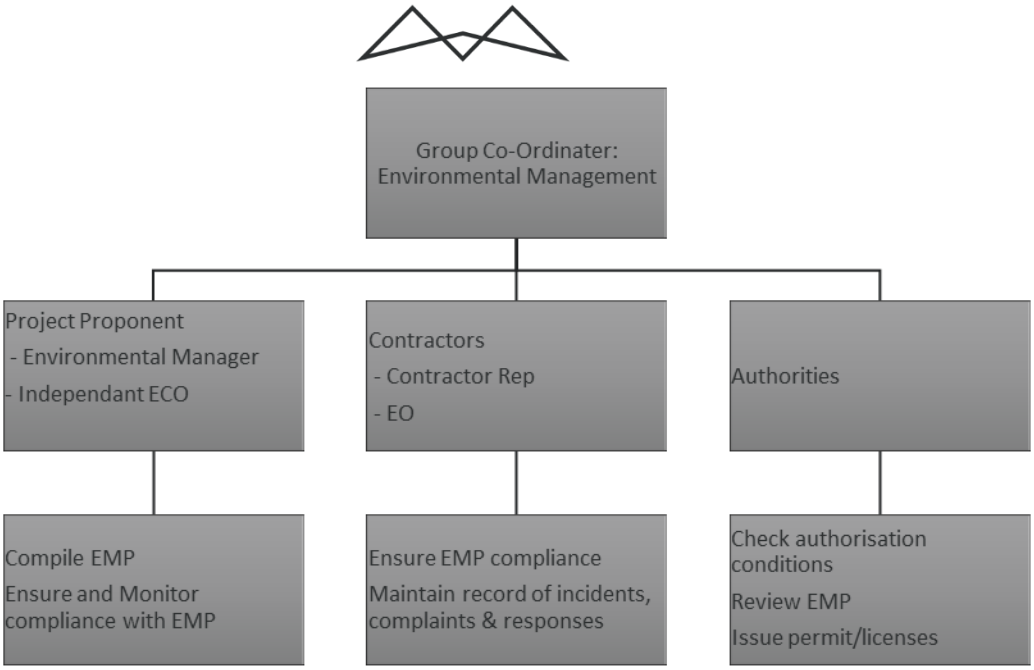

Figure 4: Roles and responsibilities for identified actions.

2.1 THE PROJECT APPLICANT/ PROPONENT

The Applicant is the principal party (Proponent) of the project. The legal accountability for correct implementation of the relevant requirements of the EA and EMPr falls primarily upon the Applicant and must therefore be built into all contractor's contractual agreements. The Applicant's role typically includes:

- Provide for all necessary supervision during the execution of the project including appointment of key personnel to act on his/her behalf during the different phases of the project phase (e.g. project manager). The key personnel will be tasked with ensuring that the various contractors/developers comply with the necessary provisions of the EA and EMPr;
- Ensure that the various contractors and applicable sub-contractors appoint a suitably qualified, competent Environmental Officer (EO) that will be responsible for among others, ensuring compliance (on a weekly basis) with the EMPr and EA throughout the construction of the relevant project components;
- Appoint a suitably qualified, competent Environmental Control Officer (ECO) who will undertake periodic audits on the various contractors works and/or land parcels under development;
- Notify the relevant competent authority of changes in the development resulting in significant environmental impacts;
- Assess the various contractor's environmental performance during construction, in consultation with the ECO;
- Ensure compliance with regulations;
- To implement the projects as per the approved project plan;
- To ensure that implementation is conducted in an environmentally acceptable manner;
- To comply with special conditions as stipulated by surrounding landowners during the negotiation process (if any); and
- To inform and educate all Employees about the environmental risks associated with the different activities that should be avoided throughout the project lifetime and lessen significant impacts to the environment.

Therefore, ultimately, the Applicant is responsible for the development and implementation of the EMPr and, where relevant, ensuring that the conditions in the EA are satisfied. Where construction activities are contracted out (e.g. to contractors and subcontractors), the liability associated with non-compliance still rests with the Applicant (unless otherwise agreed upon between the authorities, the Applicant and the contracting parties). The Applicant (and not the contractor) is therefore responsible for liaising directly with the relevant authorities with respect to the preparation and implementation of the EMPr and meeting authorisation conditions.

2.2 THE PROJECT MANAGER/ FARM MANAGER

The Project Manager/ Farm Manager would oversee all contractors, if any, from a project management point of view. The roles of the Project Manager/ Farm Manager typically include the following:

- The Project Manager/ Farm Manager acts on behalf of the Applicant regarding the administration of contracts to sub-contractors, if any exist, etc.;
- Provides and/ or approves scheduling, aspects of co-ordination and estimating;
- Provide all necessary supervision during the execution of the project
- Ensures implementation of the project plan within cost, time and quality constraints;
- Ensures that implementation of the EMPr is executed as planned;
- Keeps the asset owner informed of progress made during the life cycle of the project;
- Monitoring construction by maintaining a permanent presence on site;
- Establishing and maintaining an environmental incident register;
- Taking required corrective action within specified time frame in respect of non-conformances and environmental incidents;
- Assist in finding environmentally acceptable solutions to construction problems;
- Attendance at HSE meetings, toolbox talks and induction programmes (where relevant);
- Inspect the site as required to ensure adherence to the management actions of the EMPr on a daily basis;
- Liaise with the construction team on issues related to implementation of, and compliance with the EMPr; and,
- Ensure adequate and compliant waste management.

Due to the low-risk nature of the proposed development, and the regular presence on site, the Project Manager/ Farm Manager (or suitably qualified individual) may be appointed as the Environmental Officer (EO) to oversee daily compliance with this EMPr. The EO shall report to a suitably qualified independent Environmental Control Officer (ECO) who will perform audits at key stages of the project (refer to **Section 2.4**).

2.3 THE CONTRACTOR

The contractor is usually a third party appointed by the Applicant/ Project Manager to undertake the actual construction of the project, if necessary. For the purposes of this section, any contractor on site (regardless of who appointed them) is referred to as the “Contractor”.

The relevant contractors are answerable to the Project Manager/ Farm Manager for all environmental issues associated with the project. Contractor performance will, amongst others, be assessed on health, safety and environmental management criteria. The principal contractor/ s, any other contractors and sub-contractors will be required to comply with the provisions contained herein, and accordingly, the EMPr and its provisions must form part of any contractual arrangements between the Applicant and contractors, and contractors and their

sub-contractors, etc. The Contractor must comply with EMPr during construction and ensure that all his Employees and sub-contractors appointed by him/ her are familiar with the EMPr. The legal accountability for correct implementation of the relevant requirements of the EA and EMPr must be contractually bound to the appointed contractor, if any appointments are made.

The Contractors role includes:

- To ensure that implementation is conducted in an environmentally acceptable manner;
- To fulfil all obligations as per the agreed contract;
- To comply with special conditions as stipulated by surrounding Landowners during the negotiation process (if any); and
- Ensure that the Contractors staff and Employees have received the appropriate environmental awareness training prior to commencing construction.

The Contractor may appoint an Environmental Officer (EO), or officers, if more than one is required. If there is no third-party Contractor, these responsibilities will fall onto the Project Manager/Farm Manager. Their primary role is to coordinate the environmental management activities of the Contractor/construction activities on site. The EO may be required to perform the following roles:

- Support the ECO in monitoring by maintaining a permanent presence on site;
- Inspect the site as required to ensure adherence to the management actions of the EMPr;
- Complete Site Inspection Forms on a regular basis (weekly);
- Provide inputs to the environment reports to be prepared by the ECO;
- Liaise with the construction team on issues related to implementation of, and compliance with the EMPr;
- Maintain a record of environmental incidents (spills, impacts, legal transgressions etc) as well as corrective and preventive actions taken, for submission to the Project Proponent; and
- Maintain a public complaints register in which all complaints are recorded, as well as action taken, for submission to the Project Proponent.

2.4 ENVIRONMENTAL CONTROL OFFICER

The ECO is appointed by the Project Proponent and should be independent from the Project Proponent and the Contractors. The ECO should have appropriate training and/or experience in the implementation of environmental management specifications. The ECO must preferably have a tertiary qualification in an Environmental Management or appropriate field. The ECO provides feedback to the Project Manager/ Farm Manager regarding all environmental matters. The ECO's key role is auditing the implementation of the EMPr. For the purposes of implementing the conditions contained herein, the Project Proponent should appoint the ECO well before the start of survey activities. The ECO is responsible for the auditing function as well as the clarification of environmental conditions contained in this EMPr to anyone working on the site.

Due to the nature and length of the proposed development phases, it is recommended that the ECO only conduct audits at key stages throughout the project:

- One audit prior to initial construction of the first pivot to:
    - Conduct environmental awareness training to the project team (Proponent, Farm Manager, Contractors, and EOs);
    - Audit compliance with Pre-Construction Phase requirements and required documentation, permits and licenses.

- One audit during the initial construction of each pivot;
- One audit following the initial construction of each pivot.

Should any new EOs be appointed throughout the construction phase, the ECO is required to conduct environmental awareness training/handover with the new EO.

2.5 THE AUTHORITIES

The authorities that should be involved include the Northern Cape Province: Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL). The authorities may be required to perform the following roles:

- Review Monitoring and Audit reports, if required;
- Review whether there is compliance by the Applicant and Contractor with the terms of the EMPr and permit/ license conditions. Whenever necessary, the authorities should assist the Applicant in understanding and meeting the specified requirements; and
- The authorities may perform random controls to check compliance. In case of persistent non-compliance, the Project Proponent will be required to provide an action plan with corrective measures, and have it approved by the authorities.

3 ENVIRONMENTAL MANAGEMENT SYSTEM

The purpose of this EMPr is to ensure that the environment is properly considered during the design, construction, operations, decommissioning and rehabilitation phases, and that negative impacts are minimised or prevented, and positive impacts enhanced. At the same time the EMPr should provide a logical extension of the EIA, specialist studies, or any other technical planning and assessment documentation, to ensure that recommendations are implemented, and that the project does not deviate from the environmental profile that formed the basis of the assessment.

3.1 DOCUMENT CONTROL

A document handling system must be established to ensure accurate updating of EMPr documents, and availability of all documents required for the effective functioning of the EMPr. The document handling system must be devised by the Project Proponent and/or Contractors and agreed upon by all key parties. Responsibilities must be assigned to relevant personnel for ensuring that the EMPr documentation system (EMPr file) is maintained and that document control is ensured through access by and distribution to identified personnel. The EMPr file must be made available at all times on request by the ECO. The EMPr file will form part of any environmental audits undertaken.

The document control system must provide for the following requirements;

- Documents are approved for adequacy prior to use;
- Review and update documents as necessary and re-approve documents;
- Ensure that changes and the current version status of documents are identified;
- Ensure that relevant versions of applicable documents are available at points of use;
- Ensure that documents remain legible and readily identifiable;
- Ensure that documents of external origin necessary for the EMPr are identified and their distribution controlled; and
- Prevent unintended use of obsolete documents and apply suitable identification to them if they are retained for any purpose.

Supplementary EMPr documentation could include:

- EMPr implementation activity specifications;
- Emergency preparedness and response procedures;
- Incident reports;
- Training records;
- Records of chemicals or hazardous substances kept on site;
- Records of alien invasive plant control activities;
- Site inspection reports;
- Monitoring reports;
- Auditing reports; and
- Complaints received.

The Project Proponent should be responsible for ensuring that the registration and updating of all relevant EMPr documentation is carried out. It is usually the responsibility of the Project Manager to ensure that all personnel are performing according to the requirements of this procedure and to initiate the revision of controlled documents, when required by changes in process. Clear procedures must be specified at the beginning of the project for making changes to EMPr documents, circulating updated documents, and destroying obsolete versions. Documents must be revised as required by changing circumstances. Distribution lists and document change control sheets must be kept for all documents.

3.2 RECORD KEEPING

It is essential that an official procedure for control of records be developed to ensure records required to demonstrate conformity to environmental standards are maintained. The Applicant, or the Project manager (if assigned) is therefore required to develop and maintain a procedure for the identification, storage, protection, retrieval, retention and disposal of records as part of the EMPr. Records must be legible, identifiable and traceable.

3.3 AUDITING AND REPORTING PROCEDURES

Reporting procedures must be developed at the start of the project, for conveying information from the monitoring activities and to ensure that management is able to take rapid corrective action should certain thresholds be exceeded. Different reporting procedures may include:

- Inspections;
- Accidents and emergencies;
- Measuring performance indicators and interpreting and acting on the indicators;
- Records of monitoring activities to test the effectiveness of mitigation measures and impact controls, as well as for compliance auditing purposes; and
- Training programmes and evidence of appropriate levels/amount of skills/capacities created.

3.4 RESPONDING TO NON-COMPLIANCES

If the mitigation measures stated in the EMPr are not adequately implemented, or do not achieve the desired result, the authorities may stop the project until corrective actions have been taken and the desired environmental objective or target has been met. A system for dealing with non-compliances (i.e. incentives or

disincentives for conformance and non-conformance with the EMPr requirements) must be employed to ensure that the EMPr is adequately implemented. The system to be used must be determined described in the EMPr before construction commences, included in the tender documents and contracts, and made clear to all project workers.

Non-compliance will be identified and managed through the following four key activities including;

- **Inspections** of the site and activities across the site;
- **Monitoring** of selected environmental quality variables;
- **Audits** of the site and relevant documentation as well as specific activities; and
- **Reporting** on a monthly basis during initial construction of the pivots, and at least quarterly during the operational phase of the pivots.

An environmental non-conformance and incident register must be prepared and maintained by the Environmental Officer throughout the lifespan of the project in order to monitor environmental concerns, incidents, and non-conformances. The register must include details of date, location, description of the NC or Incident, applicable environmental commitment/standard, corrective action taken, adequacy of corrective action, date rectified, etc.

Non-compliance with the EMPr or any other environmental legislation, specifications or standards shall be recorded by the EO/ECO in the non-conformance register. This register shall be maintained by the EO/ECO and will be sent to the Project Proponent or Project Manager/ Farm Manager on a regular basis (at least quarterly), and the Project Proponent or Project Manager/ Farm Manager shall ensure that the responsible party takes the necessary corrective actions. Non-conformances may only be closed out in the register by the EO/ECO upon confirmation and record that adequate corrective action has been taken. The register should be utilised to measure overall environmental performance.

3.5 ENVIRONMENTAL INCIDENCES

For the purposes of this project, an environmental incident can be divided into three levels, i.e. major, medium and minor. All major and medium environmental incidents shall be recorded in the incident register. Minor incidents do not need to be reported but require immediate rectification on site. Definitions and examples of environmental incidents are provided in **Table 4** below.

Table 4: Description of incidents and non-conformances for the purpose of the project.

Non-Conformance	Any deviation from work standards, practices, procedures, regulations, management system performance etc. that could either directly or indirectly lead to injury or illness, property damage, damage to the workplace environment, or a combination of these.
Major Environmental Incident	An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in widespread, long-term, irreversible significant negative impact on the environment and/or has a high risk of legal liability. A major environmental incident usually results in a significant pollution and may entail risk of public danger. Major environmental incidents usually remain an irreversible impact even with the involvement of long-term external intervention i.e. expertise, best available technology, remedial actions, excessive financial cost etc. Major environmental incidents may be required to be reported to the authorities. The ECO shall make the final decision as to whether a particular incident should be classified as a Major incident. An example of a Major environmental incident would be a significant spillage (e.g. 500 litres) of fuel into a watercourse.

Medium Environmental Incident	An incident or sequel of incidents, whether immediate or delayed, that results or has the potential to result in widespread or localised, short term, reversible significant negative impact on the environment and/or has a risk of legal liability. A medium environmental incident may be reported to the authorities, can result in significant pollution or may entail risk of public danger. The impact of medium environmental incidents should be reversible within a short to medium term with or without intervention. The ECO shall make the final decision as to whether a particular incident should be classified as a Medium incident. An example of a Medium environmental incident would be a large spill of fuel (e.g. 20 – 50 litres) onto land.
Minor Environmental Incident	An incident or sequel of incidents, whether immediate or delayed, where the environmental impact is negligible immediately after occurrence and/or once-off intervention on the day of occurrence. An incident where there is unnecessary wastage of a natural resource is also classified as a minor environmental incident. An example would be leaking water pipes that result in the wastage of water. A minor environmental incident is not reportable to authorities. An example of a minor incident is day to day spills of fuel or oil onto the ground where the spill is less than one or two litres.

The following incident reporting procedures shall apply to this project:

- All environmental incidents shall be reported to the EO, and the ECO, and shall be recorded in the respective incident registers;
- The ECO shall record all medium and major incidents in the incident register and advise on the appropriate measures and timeframes for corrective action;
- An incident report shall be completed by the relevant party responsible for the incident for all medium and major incidents and the report shall be submitted to the Project Manager / Farm Manager and EO within 5 calendar days of the incident; and
- The EO shall investigate all medium and minor incidents and identify any required actions to prevent a recurrence of such incidents.

In the event of an **emergency incident** (unexpected sudden occurrence), including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed, **the Applicant shall notify the relevant authorities in accordance with legal requirements (e.g. Section 30 of NEMA and Section 20 of the National Water Act, 1998 (Act 36 of 1998 – NWA).** In the event of a dispute in terms of the classification of a such an incident, the Holder shall engage the ECO to advise on the potential reporting requirements in terms of the above.

4 REVIEW AND REVISION OF THE EMPR

It is important to note that this EMPr is made legally binding on the Holder at such time as the EMPr is approved by the decision-making authority. It is however also important to consider that the EMPr is a dynamic document which may require such alteration and /or amendment as the project evolves. Conditions under which the EMPr would require revision include:

- Changes in legislation;
- Occurrence of unanticipated impacts or impacts of greater intensity, extent and significance than predicted;

- Inadequate mitigation measures (i.e. where environmental performance does not meet the required level despite the implementation of the mitigation measure); and
- Secondary impacts occur as a result of the mitigation measures.

The Holder in consultation with the ECO should be responsible for ensuring that the registration and updating of all relevant EMPr documentation is carried out. It shall be the responsibility of the Holder to ensure that all personnel are performing according to the requirements of this procedure and to initiate the revision of controlled documents, when required by changes in process or operations and shall notify the ECO of such changes.

It is recommended that a risk assessment protocol must be developed and implemented by the ECO which shall be utilised to evaluate the environmental risk associated with the potential proposed alterations and/or amendments. The results of the risk assessment must then be included in the applicable audit report and submission to the competent authority for the amendment process. **It is important to note that if alterations and/or amendments are required, these may only be affected with written approval from the competent authority and in accordance with the then-in-effect relevant legal processes**.

5 ENVIRONMENTAL AWARENESS PLAN AND TRAINING

Training and environmental awareness is an integral part of a complete EMPr. The overall aim of the training will be to ensure that all site staff are informed of their relevant requirements and obligations pertaining to the relevant authorisations, licences, permits and the approved EMPr and protection of the environment.

The Proponent and Contractor must ensure that all relevant employees are trained and capable of carrying out their duties in an environmentally responsible and compliant manner and are capable of complying with the relevant environmental requirements. To obtain buy-in from staff, individual employees need to be involved in:

- Identifying the relevant risk;
- Understanding the nature of risks;
- Devising risk controls; and
- Given incentive to implement the controls in terms of legal obligation.

This can be achieved through giving all employees an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees. All training must be formally recorded, and attendance registers retained, and recorded in the EMPr file. The environmental training should, as a minimum, include the following:

- General background and definition of the environment;
- The importance of compliance with all environmental policies;
- The environmental impacts, actual or potential, of their work activities;
- Compliance with mitigation measures proposed for indigenous fauna/flora;
- How to identify species of conservation concern, sensitive fauna/flora likely to be encountered on site;
- Sensitive areas on the property to be avoided;
- Their roles and responsibilities in achieving compliance with the environmental policy and procedures and with the requirement of the Proponent's environmental management systems, including emergency preparedness and response requirements;
- The potential consequences (legal and/or other) of departure from specified operating procedures including fines (where applicable);

- The mitigation measures required to be implemented when carrying out their work activities; and
- All risks must be identified, and processes established to mitigate such risk, proactively. Thus, the applicant needs to inform the employees of any environmental risks that may result from their work, and how these risks must be dealt with in order to avoid pollution and/or degradation of the environment.

In the case of permanent staff required during the operational phase of the project, the Applicant shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the Contractor / Applicant shall keep a record of adequate environmental induction training.

The Induction Training Material must be reviewed and approved by the ECO.

Throughout the Construction Phase, regular Environmental Toolbox Talks prepared by the Contractor's EO to cover a range of environmental topics and presented to relevant staff during applicable times during the construction activities (e.g. at the start of a day or activity) is recommended. The aim of these toolbox talks will be to inform employees of general environmental requirements pertaining to specific activities, as well as specific EMPr requirements and obligations. The EO shall maintain a document in the EMPr file that records the topics, dates and times of the toolbox talks. The ECO shall review environmental toolbox talks on a periodic basis to ensure the material is relevant and appropriate.

Environmental awareness can further be achieved through informal training of all staff on an on-going basis through informal discussions, on-site supervision and through facilitation of day-to-day activities. Such training should be given or otherwise facilitated by the Contractor's EO.

6 EMERGENCY RESPONSE PLAN

The Proponent and/ or Contractor should identify potential emergencies and develop procedures for preventing and responding to them. There are several options for dealing with high priority impacts and risks, as the paradigm has two components, probability and consequence. The design of control measures rests on understanding the cause and effect. Best practise is to intervene with the ultimate factors where feasible, rather than treat the outcomes. Emergency response therefore has the option of reducing probability or reducing the consequence while reducing the probability is the preferred option. Below are some common emergency preparedness approaches:

- Threat consequence if a risk eventuates, when the risk becomes an issue;
- Combine reducing the probability and treating the consequence;
- Offset environmental losses by investing in other assets;
- Not manage some of the risks because there are too many; and
- Make provision to manage residual impacts or issues that arise because of shortcomings in risk identification and rating, avoidance and mitigation or because a rare event has occurred.

Residual impacts are those impacts that despite reducing the probability and consequence might still occur. In these cases, parties will have to be compensated, pollution cleaned up and damage to the environment remediated.

The Proponent and/ or Contractor shall be required to develop and implement an Emergency Preparedness and Response Plan prior to commencing work. The Proponent/Contractor must ensure that the Emergency Preparedness and Response Plan makes provision for environmental emergencies, including, but not limited to:

- Fire Prevention;
- Fire Emergency Response;
- Spill prevention;

- Spill Response;
- Accidents to employees; and
- Use of hazardous substances and materials, etc.

The Proponent and Contractor must ensure that lists of all emergency telephone numbers/contact persons (including fire control) are kept up to date and that all numbers and names are posted at relevant locations throughout the lifespan of the project.

6.1 SPILL RESPONSE PROCEDURE

The Contractor must ensure that all employees, staff and labourers are informed and instructed regarding implementation of spill prevention measures and spill response procedures. In the event of a spill, the following general requirements shall apply, and the detailed spill procedure must cater for these requirements:

- Immediately reporting of spills by all employees and/or visitors to the relevant supervisor and EO (this requirement should be included in induction training);
- Take immediate action to contain or stop the spill where it is safe to do so;
- Contain the spill and prevent its further spread;
- Dispose of any contaminated materials according to appropriate waste disposal procedure. Note: Waste from spills of hazardous materials is to be disposed of as hazardous waste at a suitably licensed waste disposal facility;
- The Contractor's EO shall record details of the spill in their respective incident registers;
- Photographic evidence shall be obtained of the spill clean-up.

In the case of large spills, the services of a specialist spill response agency shall be required, who shall advise on appropriate clean-up procedures and follow-up monitoring (if required). The incident procedures as defined in **Section 3.5** shall also apply.

The Proponent and Contractor should also, (as per Section 30 of the NEMA) notify the Director-General (Department of Forestry, Fisheries and the Environment - DFFE, Competent Authority), South African Police Services, Provincial Environmental Authority, the Local Municipality, and any persons whose health may be affected of the nature of an incident including:

- Any risks posed to public health, safety and property;
- Toxicity of the substance or by products released by the incident; and
- Any step taken to avoid or minimise the effects of the incident on public health and the environment.

6.2 MEASURES TO CONTROL OR REMEDY ANY CAUSES OF POLLUTION OR DEGRADATION

The broad measures to control or remedy any causes of pollution or environmental degradation as a result of the proposed activities taking place on the project are provided below:

- Limit the size of the area to be disturbed as far as is practically possible;
- Ensure that the environmentally sensitive areas are adequately demarcated throughout the construction phase;
- Ensure topsoil, subsoil and rock dumps are provided with adequate storm water runoff measures;
- Contain potential pollutants and contaminants (where possible) at source;

- Handling of potential pollutants and contaminants (where possible) must be conducted in controlled areas;
- Ensure the timeous clean-up of any spills;
- Implement a waste management system for all waste streams present; and
- Investigate any third-party claims of pollution or contamination as a result of the project activities.

7 IMPACT MANAGEMENT AND MITIGATION MEASURES

This section provides management and mitigation measures that need to be implemented at the relevant phases of the proposed project to ensure that the identified impacts are properly managed and mitigated to avoid or minimise degradation of the surrounding environment and to positively impact the socio-economic aspects of the area. **Table 5** below encapsulates the management and mitigation measures for all identified impacts. This table also includes the party responsible for ensuring compliance with each management or mitigation measure, the party responsible for monitoring (and frequency thereof) compliance and the performance indicators that can be utilized to ensure that the target for each management and mitigation measure is achieved.

No planning phase impacts are expected due to the nature of the proposed project. Site clearance and development of the pivots will occur during the construction and operational phases. However, the applicant must ensure that the necessary permits for activities involving protected species are obtained prior to construction of the pivots.

- In order to remove species listed in Schedule 1 & 2 of the NCNCA during site clearing activities, an integrated permit application must be made to the DAERL to obtain the required permission to remove and/or translocate these species from site. A permit would also be required to destroy or translocate any nationally or provincially listed species from the site. A single permit, which covers all of these permitting requirements as well as meets TOPS regulations, is used.
- In order to remove the protected trees a license application will have to be made to the Department of Forestry, Fisheries and the Environment.

Prior to commencement of construction:

- The method statements prepared and agreed to by the Project Proponent/Farm Manager and ECO must be appended to the template as **Appendix 1**.
- An Alien Invasive Control Plan must be appended to the template as **Appendix 2**.
- A Nutrient Management Plan must be appended to the template as **Appendix 3**.
- A Pesticide & Fungicide Management Plan must be appended to the template as **Appendix 4**.

Each method statement and plan (as specified above) must also be duly signed and dated by the contactor and/or the Project Proponent/Farm Manager.

This template once signed and dated should be binding. The Project Proponent/Farm Manager will remain responsible for its implementation.

Table 5: Impact Management Actions and Outcomes.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	**Method of Implementation**	**Timeframe for Implementation**	**Responsible Person**	**Frequency**	**Evidence of Compliance**
7.1 LEGAL COMPLIANCE WITH THIS EMPR AND THE EA						
Compliance with conditions as set out in the EA, if granted. Compliance with the conditions of this EMPr during the lifetime of the project and updated when needed as per Section 4 of this report.	Applicant Project Manager EO	Non-compliances to be noted in a non-compliance/ incident register. Where possible, photos of an incident should be taken.	Throughout the Project Lifespan (pre-construction, construction, operation, decommissioning/ rehabilitation).	ECO Environmental Auditor	As specified in Section 2.4 of this EMPr.	Non-compliance/ incident register is kept up-to-date.
7.2 APPOINTMENTS						
The Applicant is responsible to appoint a Project Manager (either himself or the Farm Manager). The Project Manager needs to appoint Contractors/ farm workers if and when required. The Contractors, if required, should be suitably qualified for the job and should preferably be sourced locally as far as reasonably possible.	Applicant Project Manager	Project manager and Contractors should be appointed prior to construction. Farm workers to be appointed when required.	Prior to construction, and when required.	ECO	Prior to construction.	Contract with contractors which includes qualifications and experience, if contractors are required. Signed register of all farm workers that worked on the project.
7.3 ENVIRONMENTAL AWARENESS TRAINING **Impact management outcome: All onsite staff are aware and understands the individual responsibilities in terms of this EMPr.**						
a. All staff must receive environmental awareness training prior to commencement of the activities. Also refer to **Section 5** of this EMPr.	ECO EO	Induction Presentation	ECO: start of construction	Project Manager ECO	EO: Monthly during Construction	Induction presentation and toolbox talks content.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
b. The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course. c. Refresher environmental awareness training is available as and when required. d. All staff are aware of the conditions and controls within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EMPr. e. The Contractor must ensure that relevant environmental awareness posters are made available at key locations/ gathering points. Recommended environmental posters include information on identification of sensitive fauna/flora species likely to be encountered on site. f. Environmental awareness training should include as a minimum the following: i. Description of significant environmental impacts, actual or potential, related to their work activities; ii. Mitigation measures to be implemented when carrying out specific activities; and iii. Emergency preparedness and response procedures.		Environmental Topics – Relevant Posters at gathering points. Toolbox Talks	EO: appointment of new employees EO: Monthly EO: Weekly		ECO: As specified in Section 2.4 of this EMPr.	Interviews with workers on site. Signed attendance register of toolbox talks.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.4 EMERGENCY PROCEDURES **Impact management outcome: emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.**						
a. Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project. b. The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation. c. All staff must be made aware of emergency procedures as part of environmental awareness training. d. The relevant local authority must be made aware of a fire as soon as it starts. e. In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances **Section 7.4.1** of this table). Also refer to **Section 6** of this EMPr.	Contractor	Emergency Response Action Plan (ERAP) Environmental Topics - presentations/ printed handouts/ posters Toolbox talks Incident register Notification procedure Record keeping Spill procedure	Prior to construction and ongoing	EO ECO	EO: Monthly during Construction ECO: As specified in Section 2.4 of this EMPr.	Interviews with employees. ERAP available in file on site. Content of presentation content of toolbox talks. Spill procedure. Incident register. Incident investigation reports.
7.4.1 HAZARDOUS SUBSTANCES **Impact management outcome: safe storage, handling, use and disposal of hazardous substances.**						
a. A spill containment kit should be in place in the event of accidental spillages of hazardous chemicals (petrol, diesel and oil or production chemicals). Accidental spillages should be cleaned up immediately by the contractor or relevant employee, placed in sealed containers and disposed of at a licensed waste disposal site.	Contractor Project Manager	Toolbox talks Incident register Notification procedure Record keeping	Prior to construction and ongoing.	EO ECO	EO: Weekly ECO: As specified in Section 2.4 of this EMPr.	Interviews with employees ERAP available in file on site. Content of toolbox talks Spill procedure Incident register

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
b. The responsible operator must have the required training to make use of the spill kit in emergency situations. c. No storage of oil, fuel or hydrocarbons is allowed on-site. Any storage, if necessary, should be in appropriate storage containers and stored within a designated area that is bunded and impermeable (concrete). No direct contact between the storage containers and the ground is allowed. d. No unauthorised access into the hazardous substances storage areas shall be permitted. e. No smoking must be allowed within the vicinity of the hazardous storage areas. f. Adequate fire-fighting equipment must be made available at all hazardous storage areas. g. 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. h. 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. i. Concrete mixing (if undertaken) must be carried out on an impermeable surface (such as on boards and/or within a bunded area with an impermeable surface). Refer to **Section 6.1** of this EMPr.		Spill procedure				Incident investigation reports Spill containment kit available

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.4.2 FIRE PREVENTION AND RESPONSE PROCEDURE						
a. The risk of fires should be assessed and where/ if required the relevant party shall ensure that fire breaks are created prior to the onset of construction. Fire breaks must be maintained as necessary to ensure they remain effective. b. A fire extinguisher, and if deemed necessary by the Applicant, additional firefighting equipment has to be available on-site during construction. c. Workers must be inducted on the handling of firefighting equipment. d. No open fires will be permitted on-site. e. No smoking will be allowed within close vicinity of the site. f. Firefighting equipment must be available on all vehicles located on site. g. The local Fire Protection Agency (FPA) must be informed of construction activities. h. Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site. i. Two-way swop of contact details between EO and FPA. j. Emergency response plan to be development for the site. k. Prevent the accumulation of dry organic material by removing the material as soon as possible.	EO Project Manager	Email and physical notification delivered to the FPA representative in person. Notification to include contact details of EO, Project Manager and ECO and reply with correct contact details of person on duty. Management Actions to be included in the ERAP.	Prior to construction and ongoing.	EO ECO	EO: Weekly ongoing ECO: ECO: As specified in Section 2.4 of this EMPr.	Interview with employees. ERAP in environmental site file. Content of toolbox talks and Environmental Topics - presentations/ printed handouts. Physical inspection of firefighting equipment and servicing.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.5 HEALTH, SAFETY AND SECURITY						
a. The speed limit on private/ unregulated roads (access roads) of construction and production vehicles should be limited to 30 km/h and all traffic rules on regulated roads should be adhered to. b. Employees must be made aware of their specific responsibilities in terms of the environmental impacts i.e. controlling noise levels, reducing dust, etc. c. Employees must be made aware that no alcohol/drugs are allowed on site and no workers under the influence are permitted on site. d. Employees must be made aware that no unregulated open fires will be permitted on site. e. The required PPE shall always be worn on site. f. First aid equipment should be available at the farmstead and/or workshop. g. An adequate number of waste bins shall be provided to contain the waste generate by this project.	Applicant Project Manager Contractor	Approved construction site and laydown area layout. Approved waste management plan. Approved Emergency Response Plan.	Ongoing	EO ECO	EO: Weekly ongoing ECO: ECO: As specified in Section 2.4 of this EMPr.	Complaints register Interviews with surrounding landowners/land users Site photographs Approved plans in Environmental Site File Content of environmental awareness training material /toolbox talks content.
7.5.1 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.**						
a. Mobile chemical toilets are to be installed onsite if no other ablution facilities are available.	Project Manager Contractor EO	Certified mobile chemical toilet contractor appointed.	Throughout construction phase	EO ECO	EO: Weekly ECO: As specified in Section 2.4 of this EMPr.	Waste disposal certificates Photographs indicating no spillages, and proof of being serviced regularly.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
b. Adequate ablution facilities must be available at all times for the site staff. There must be at least 1 toilet per 15 site staff. c. 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. d. Where mobile chemical toilets are required, the following must be ensured: i. Toilets are located no closer than 100 m to any watercourse or water body; ii. Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; iii. No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMPr; iv. 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; v. Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; vi. Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; e. A copy of the waste disposal certificates must be maintained.		Record keeping				

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.5.2 PREVENTION OF DISEASE **Management outcome: All necessary precautions linked to the spread of disease are taken.**						
a. Clean, drinking water should always be available on site for workers and visitors. b. Undertake environmentally-friendly pest control in the camp area (if a camp area is established). c. Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS. d. The Contractors must ensure that information handouts/presentations on AIDS are provided to workers. e. Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable. f. Medical support must be made available. g. Provide access to Voluntary HIV Testing and Counselling Services.	Project Manager EO	Monthly Environmental Topics - presentations/ printed handouts Toolbox talks	Throughout the construction phase and ongoing	EO ECO	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	Interviews with employees Content of toolbox talks
7.6 IMPACTS ON EXISTING INFRASTRUCTURE AND SERVICES						
a. Identify all infrastructure and services within proximity of the proposed project to be avoided. If any construction sensitive infrastructure and services (underground or above-ground) exist, they should be clearly marked, and contractors should avoid these.	Applicant Project Manager Contractor	Method statement and layout plan with construction areas indicated.	Prior to construction Prior to	EO ECO	EO: Prior to construction Weekly during construction	Approved method statement and layout plan.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
b. Maximum use of both existing servitudes and existing roads must be made.			construction and ongoing		ECO: As specified in Section 2.4 of this EMPr.	
7.6.1 ACCESS ROADS **Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.**						
a. If necessary, access to the servitude and development site must be negotiated with the relevant landowner/s and must fall within the assessed and authorised area. i. An access agreement must be formalised and signed by the Farm Manager, Contractor and landowner before commencing with the activities. ii. The access roads to the development site must be signposted after access has been negotiated and before the commencement of the activities. iii. Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense. iv. In circumstances where private roads must be used, the condition of the said roads must be recorded prior to use and the condition thereof agreed by the landowner, the Farm Manager, and the Contractor. v. 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.	Applicant Project Manager Contractor	Sign access agreement (if necessary) Temporary fencing / demarcation and weather-proof signage Maintenance plan and schedule Stormwater Management Method Statement	Prior to construction Prior to construction and ongoing	EO ECO	EO: Prior to construction Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	Signed access agreement (if relevant). Photographs of fencing and signage in good condition. No indication of deviation from access roads and or complaints registered. Content of method statements and plans. Stormwater is managed effectively. There is no evidence of erosion, or evidence of sedimentation of streams or watercourses.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
b. Maximum use of both existing servitudes and existing roads must be made. c. As far as possible, access roads must follow the contours in hilly areas, as opposed to winding down steep slopes. d. Access is to be established by vehicles passing over the same track on natural ground, multiple tracks are not permitted. Access roads must only be developed where necessary on steep slopes or where boulders prohibit vehicular traffic. e. During the construction phase access roads must be maintained and cleaned from spillages and residue and stormwater should be managed, especially on the gravel access road connecting with the public road. f. Maintenance and clean-up of the roads to be conducted daily and or weekly after spillage and / or rain. g. Temporary stormwater management to be implemented to ensure no sedimentation of the public stormwater system takes place to prevent sedimentation of streams and water courses.						
7.6.2 IMPACTS ON TRAFFIC **Impact management outcome: Ensure that no unreasonable traffic delays are caused because of the project and that all traffic regulations are adhered to.**						
a. Ensure that all construction/ production vehicles using public roads are in a roadworthy condition, maintained and that they adhere to the speed limits and that all local, provincial and national regulations are adhered to.	Applicant Project Manager Contractor	Maintenance plan and schedule	During construction and ongoing	EO ECO	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	All construction and production vehicles using public roads are road worthy. The non-compliance/ incident register should have no traffic complaints. If it does contain complaints, a

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
						description of how the complaint was addressed should be recorded.
7.7 WATER SUPPLY MANAGEMENT						
a. Ensure water conservation is being practiced by: i. Minimising water use during cleaning of equipment; ii. Undertaking regular audits of water systems for e.g. to detect leaks; and iii. Including a discussion on water usage and conservation during environmental awareness training. b. Only lawfully authorised sources of water will be used in the development. c. Accurate records of water use must be maintained.	Applicant Project Manager Contractor EO	Toolbox Talks Audit and monitor water systems and usage	Weekly during construction Ongoing	EO ECO Project Manager	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr. Project Manager: Weekly during operation of pivots (irrigation)	Daily recordings of flow metres of water used Interviews with employees Content of Toolbox talks No unlawful use of water for irrigation
7.8 NO-GO AREAS **Impact management outcome: To minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.**						
a. Identification of No-Go areas (this will typically include sensitive environmental areas etc.) is to be informed by the environmental assessment, site walk through and any additional areas identified during development. b. Erect, demarcate and maintain a temporary fence around the perimeter of any No-Go area.	Project Manager Contractor EO	Temporary fencing with weather-proof signage at no-go areas	Prior to construction	EO ECO	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	Photographs of fencing and signage in good condition.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
c. Unauthorised access and development related activity inside No-Go areas is prohibited.						
7.9 EQUIPMENT MAINTENANCE AND STORAGE **Impact management outcome: Soil, surface water and groundwater contamination is minimized.**						
a. Where possible and practical all maintenance of vehicles and equipment must take place in a dedicated workshop area. No maintenance of vehicles and equipment is allowed in the pivot areas. b. During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area (if established), a suitable drip tray must be used to prevent spills onto the soil. c. Leaking equipment must be repaired immediately or be removed from site to facilitate repair. d. Workshop areas (if established) must be monitored for oil and fuel spills. e. Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place or the amount of hazardous material to be kept on site must be available. f. The workshop area (if established) 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;** g. Water drainage from the workshop area (if established) must be contained and appropriately disposed of (not on the ground/soil).	Project Manager Contractor	Toolbox talks Incident register Record keeping Spill procedure	Prior to construction and ongoing	EO ECO	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	Interviews with employees Content of toolbox talks Spill procedure Incident register Incident investigation reports

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.10 SOCIO-ECONOMIC IMPACTS **Impact management outcome: Positive socio-economic impacts are maximized.**						
a. Employ local work force as far as reasonably possible. b. Utilise existing community structure to act as a communication link between the local community and the Applicant for informing the local community of job opportunities and informing the Applicant of possible contractors in the local community. c. Opportunities to be given previously disadvantaged individuals where practically possible. d. It is recommended that cleared vegetation be recycled as far as practicably possible. Usable timber from vegetation clearance can be donated to communities for firewood or furniture crafting thereby supporting local circular economies. e. Support local food security by, for example, selling the product locally.	Applicant Project Manager	Utilise existing community structure to act as a communication link between the local community and the Applicant for informing the local community of job opportunities and informing the Applicant of possible contractors in the local community.	Prior to and during construction, and whenever new employment opportunities are available.	Project Manager ECO	Project Manager: Prior to construction and during construction and operation ECO: As specified in Section 2.4 of this EMPr.	Contracts between the Applicant and suitably qualified Contractors/ employees, when required, from the local communities as far as reasonably possible.
7.11 VISUAL IMPACT **Impact management outcome: Visual impacts are minimized, and indigenous vegetation within the inter-pivot areas is maintained/promoted.**						
a. Dedicated waste bins to be placed near construction sites to prevent littering. b. Preserve natural vegetation between pivots to minimise the impact on the visual aesthetic of the footprint area. c. Limit vegetation clearance to access roads, pivots and infrastructure.	Applicant Project Manager Contractor	Approved construction site and laydown area layout. Implement an Alien Invasive Plan	Ongoing	Project Manager EO ECO	Project Manager and EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	Complaints register Interviews with surrounding landowners/land users Site photographs Content of toolbox talks.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
d. Implement alien vegetation control measures. e. The Contractor shall take reasonable measures to ensure that construction activities do not have an unreasonable impact on the aesthetics of the area.						
7.12 IMPACT ON AIR **Impact management outcome: dust and vehicle emissions are minimized.**						
a. **Dust Control:** i. Strict on-site speed control should limit vehicle speeds to 30 km/hour. ii. Access roads to the development footprint need to be well maintained. iii. Construction should take place on non-windy days, where possible. iv. Water down construction sites and access roads regularly. v. Cover stockpiles of soil and other materials. vi. Use dust suppressants. b. **Vehicle Emissions Control:** i. Maintain construction vehicles in good working order. ii. Minimize idling time. iii. Use low-emission construction equipment.	Project Manager Contractor EO	Induction Presentation Toolbox Talks Implement Dust suppression measures using water trucks/bowsers. If not effective, add chemical dust suppressant. Proper planning to reduce idling time.	Start of construction, appointment of new employees Weekly during construction Throughout project lifetime	EO ECO	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	Induction presentation and toolbox talks content Employee interviews Signed attendance register of toolbox talks Vehicle maintenance records Photographs of covered stockpiles. Photographs of dust suppression.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.12.1 IMPACTS ON AIR (OPERATIONAL PHASE)						
a. Ensure that access roads to the development footprint are well maintained. b. Production phase vehicles should not exceed 30 km/h on access roads or in-field. c. Apply dust suppressants to roads and bare fields. d. Implement minimum tillage or no-till farming practices to minimize soil disturbance. e. Establish windbreaks using local indigenous trees or shrubs to reduce wind speeds and dust generation. f. Ensure that all farm machinery is regularly maintained and in good working order to minimize emissions. g. Stationary vehicles should be powered down, avoiding extended periods of idling, to reduce unnecessary emissions. h. Avoid applying pesticides during windy conditions. i. Use low-drift application techniques, as far as possible to minimise airborne particles of pesticides/herbicides. j. Implement an IPM to minimize pesticide use by relying on biological control, cultural practices, and targeted applications. k. Apply fertilizers based on soil testing and crop nutrient requirements to minimize over-application.	Project Manager	Implement Dust suppression measures using water trucks/bowsers. If not effective, add chemical dust suppressant. Update Non-Conformance/ incident register Update Complaints register	Throughout operational phase	Project Manager	Weekly during operational phase	Minimal dust visible from operational activities. Non-Conformance/Incident and Complaints registers are kept up-to-date.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.13 NOISE IMPACTS **Impact management outcome: noise generated as a result of activities on site is minimized, thereby minimizing the impact to sensitive noise receptors such as wildlife habitats.**						
a. Schedule noisy activities during daytime hours. b. Use noise barriers or mufflers on construction equipment, as far as possible. c. All workers to be supplied with PPE including ear plugs, if required for the work they are doing. d. No loitering or loud music on or around the site will be allowed. e. Inform the community of loud operations. f. Ensure that all vehicles are serviced and in a good working condition.	Project Manager Contractor	Ensure staff is sent home at or prior to sunset. Access control	Daily	EO ECO	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	Complaints register Interviews with employees.
7.14 IMPACT ON WATER **Impact management outcome: Impacts to the environment, such as pollution, erosion and sedimentation, caused by storm water and wastewater discharges are avoided.**						
a. Runoff Control: i. Design and implement stormwater management systems. ii. Create retention ponds or swales to slow down runoff. iii. Maintain existing drainage patterns as much as possible.	Project Manager Contractor EO	Stormwater Management Method Statement Use of absorbent materials for spills on concreate surfaces and drip trays	Ongoing	EO ECO Project Manager	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr. Project Manager: Ongoing	Stormwater management method statement No signs of pollution due to storm or waste water management photographs as proof. Waste disposal certificates.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
b. Sedimentation Control: i. Ensure that water / stormwater does not exit the site, but is rather diverted back to the site and/or other vegetation for use on site. **c. Groundwater Protection:** i. Implement strict controls on the use and disposal of hazardous materials. Refer to **Section 6.1** of this EMPr. **d. Water Quality Protection:** i. Control runoff from construction sites. e. All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material (sufficient spill-kits available on site for the various types of chemicals stored) and the used absorbent material disposed of at an appropriate waste disposal facility. f. In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances **Section 7.4.1** of this table). Also refer to **Section 6** of this EMPr.		Disposal of contaminated water/soil at suitable facility Toolbox talks				Silt trap maintained and in use, if applicable. Content of Toolbox talks Spill kits are made available where appropriate

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.15 IMPACT ON WATER (OPERATIONAL PHASE) **Impact management outcome: Impacts to the environment, such as pollution, erosion and sedimentation, caused by storm water and wastewater discharges during operation are avoided. Surface water contamination from agricultural runoff (nutrients, pesticides) and oil/ fuel spillages are avoided. Water-efficient operational activities are used.**						
a. Implementation of efficient irrigation scheduling, reducing water application and evapotranspiration. b. Employ evapotranspiration-based irrigation scheduling to match water application with crop water needs, reducing over-irrigation. c. Establish a monitoring program to track water levels and identify potential depletion. d. Utilize Integrated Pest Management (IPM) strategies to minimize pesticide use, relying on biological control, cultural practices, and targeted applications as far as possible. e. Employ soil testing and crop nutrient requirements to determine precise fertilizer application rates, reducing over-application. f. Utilize slow-release fertilizers as far as possible to minimize nutrient leaching and runoff. g. Employ erosion control techniques, such as mulching, to minimize sediment runoff. h. Develop and Implement a Nutrient Management Plan, detailing the type, amount, timing and placement of fertilizers.	Applicant Project Manager	Approved operational phase activities method statement. Stormwater Management Method Statement Approved monitoring/ management plans Approved maintenance schedule	Ongoing, throughout operation phase	Project Manager ECO	Project Manager: Weekly ECO: Post-construction of each pivot	Stormwater management method statement Approved operational phase activities method statement. Approved water use monitoring/ Nutrient management plans Approved maintenance schedule No signs of pollution due to storm or waste water management photographs as proof. Equipment is maintained and no signs of leaks is noted

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
i. Develop and implement a pesticide and fungicide management plan, detailing what pesticides and fungicides are being used, and how they will be applied. j. Conduct regular maintenance and inspections of irrigation systems to identify and repair leaks or malfunctions.						
7.16 RESIDUAL CONTAMINATION OF WATER (DECOMMISSIONING/ REHABILITATION PHASE) **Impact management outcomes: Appropriate soil and water remediation and restoration strategies are implemented to mitigate the residual contamination of water resources once agricultural activities have ceased.**						
a. Conduct comprehensive soil testing to identify potential contamination sites. b. Develop and implement a site-specific soil remediation plan based on the results of soil testing. c. Remove all residual chemicals and fuels from storage facilities and equipment. d. Remove all infrastructure and equipment. e. Implement erosion control measures during the rehabilitation phase, such as silt fences, and sediment basins, to prevent contaminated soil from entering waterways. f. Implement a long-term monitoring program to assess the effectiveness of remediation and rehabilitation efforts. g. No waste should be left on the site.	Applicant Project Manager	Approved decommissioning/ rehabilitation phase method statement Long-term monitoring until remediation and rehabilitation has been effected.	Throughout decommissioning Throughout rehabilitation or until the site has been fully rehabilitated	Project Manager	Weekly throughout decommissioning Monthly throughout rehabilitation	Silt trap maintained and in use, if applicable. No signs of pollution due to storm or waste water management photographs as proof. Site has been rehabilitated (the rehabilitation phase will be considered finished when the site resembles a semi-natural state, with minimum alien invasive species). No waste is left on site.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.17 IMPACTS ON SOIL (CONSTRUCTION PHASE) **Impact management outcome: impacts on soil during initial construction of each pivot (clearance of indigenous vegetation, installing pivot irrigation systems, etc.) are avoided and minimized.**						
a. Erosion Control: i. Implement erosion control measures such as silt fences, sediment basins, and contouring. ii. Minimize the area of exposed soil at any one time. iii. Any evidence of erosion, scouring, sedimentation, and/or undercutting must be rectified and rehabilitated immediately. The Project Manager should make notes if evidence of erosion, scouring, sedimentation or undercutting is occurring in the non-compliance/ incident register and also take photos. Evidence in the form of photos after rehabilitation of erosion should also be available. iv. Revegetate disturbed areas as soon as possible. v. Avoid construction/clearance during periods of heavy rainfall. **b. Compaction Prevention:** i. Restrict heavy machinery to designated access routes. ii. Use low-impact construction techniques.	Project Manager Contractor EO	Maintenance plan and schedule Stormwater Management Method Statement Toolbox talks Spill Response Plan Disposal of contaminated water/soil at suitable facility	Prior to construction and ongoing	Project Manager EO ECO	Project Manager and EO: Prior to construction. EO: Weekly during construction. ECO: As specified in Section 2.4 of this EMPr.	Silt trap maintained and in use, if applicable. Content of Toolbox talks Spill kits are made available where appropriate Approved maintenance plan and schedule Stormwater Management Method Statement Stormwater is effectively managed. There is no evidence of erosion, scouring, sedimentation, and/or undercutting. All vehicles and equipment are in good working order within construction areas No unauthorized routes are used for movement of vehicles. Non-compliance/ incident register is up to date.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
iii. Aerate compacted soils after construction. iv. Also refer to **Section 7.6.1** of this table (Access Roads). **c. Contamination Prevention:** i. Use bunded containment for fuel and chemical storage. ii. Develop and implement a spill response plan. iii. Properly dispose of all waste materials at a licenced waste facility. iv. Use drip trays for stationery vehicles. v. Maintain all vehicles and machinery. vi. All servicing/ maintenance of construction or production vehicles that could cause harm to the environment or spills must be done off-site. No servicing of construction vehicles is allowed on site, except for minor repairs to prevent further environmental pollution or damage. vii. See Hazardous Substances **Section 7.4.1** of this table. Also refer to **Section 6** of this EMPr.						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.18 IMPACTS ON SOIL (OPERATIONAL PHASE) **Impact management outcome: Impacts to the environment, such as pollution, erosion and sedimentation, caused by storm water and wastewater discharges during operation are avoided. Soil compaction, erosion, and degradation is avoided. Soil quality improvement practices are implemented.**						
a. Implementation of efficient irrigation scheduling, reducing water application and evapotranspiration. b. Conduct routine soil tests to monitor salinity levels and identify areas of accumulation. c. Implement periodic leaching practices by applying excess water to flush accumulated salts below the root zone. d. Implement Integrated Pest Management (IPM) strategies to minimize pesticide use, relying on biological control, cultural practices, and targeted applications e. Utilize soil testing and crop nutrient requirements to determine precise fertilizer application rates, reducing over-application f. Employ slow-release fertilizers as far as possible to minimize nutrient leaching and runoff. g. Implement strict protocols for the handling, storage, and disposal of fertilizers and pesticides to prevent soil contamination. h. Minimise soil compaction by using designated routes as far as possible. i. Implement minimum or no-till farming practices as far as possible to minimize soil disturbance and maintain soil structure.	Applicant Project Manager	Approved operational phase activities method statement. Stormwater Method Statement Approved monitoring/ management plans Approved maintenance schedule	Ongoing, throughout operation phase	Project Manager ECO	Project Manager: Weekly during operation ECO: Once, post-construction of each pivot	Stormwater Method Statement Approved operational phase activities method statement. Approved water use monitoring/ Nutrient management plans. Approved maintenance schedule. No signs of pollution due to storm or waste water management photographs as proof. Equipment is maintained and no signs of leaks is noted. Silt trap maintained and in use, if applicable. All vehicles are in good working order within pivot areas

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
j. Incorporate organic matter, such as compost or cover crops, into the soil to improve soil structure and reduce compaction, where possible. k. Plant cover crops during fallow periods to protect the soil from erosion. l. Establish windbreaks using local indigenous trees or shrubs to reduce wind erosion between pivots. m. Where possible, consider intercropping, i.e. planting multiple crops simultaneously to increase soil biodiversity and nutrient utilisation. n. Ensure that all vehicles used are serviced and in a good working condition. o. Ensure that every construction vehicle has a spill prevention kit, to be used for accidental spillages of oil or fuel. p. No storage of oil or fuel is allowed on-site. Any storage, if necessary, should be within a designated bunded impervious area and no direct contact between the storage containers and the ground is allowed. q. Implement crop rotation, mulching and cattle grazing during fallow season to contribute to soil quality improvement. r. Undertake Global G.A.P. audits to ensure fertilizer application is undertaking in accordance with the regulations. s. All servicing/ maintenance of construction or production vehicles that could cause harm to the environment or spills must be done off-site. No servicing of construction/ operation vehicles is allowed on site,						No unauthorized routes are used for movement of vehicles. Global G.A.P. Audits are undertaken when required.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
except for minor repairs to prevent further environmental pollution or damage. t. See Hazardous Substances **Section 7.4.1** of this table. u. Chemical Vegetation Management (Herbicides): i. Implement an Herbicide Management Plan that ensures compliance with the relevant legislation, e.g., the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947) (FFFARSR). ii. Undertake spot treatment to avoid the loss of untargeted plant species. iii. Use low-drift application techniques, as far as possible to minimise airborne particles of pesticides/herbicides. iv. Do not apply foliar chemical applications under conditions where chemical drift may impact non-targeted species. v. Follow manufacturer's instructions when mixing and applying herbicides. vi. Use appropriate PPE when handling chemicals and herbicides. vii. Ensure that staff using chemicals are trained and aware of the risks of using chemicals. viii. Chemicals must be mixed and/or stored on impermeable and level surfaces, in demarcated areas, and as per the manufacturer's instructions.						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
ix. All waste material and containers must be safely and properly removed/disposed of after use. x. Only use herbicides registered for a specific target species under the FFFARSR Act. xi. Prevent overuse of herbicides. Also refer to **Section 6** of this EMPr.						
7.19 RESIDUAL CONTAMINATION OF SOIL (DECOMMISSIONING/ REHABILITATION PHASE) **Impact management outcomes: Appropriate soil and water remediation and restoration strategies are implemented to mitigate the residual contamination of water resources once agricultural activities have ceased.**						
a. Conduct comprehensive soil testing to identify potential contamination sites. b. Develop and implement a site-specific soil remediation plan based on the results of soil testing. c. Remove all residual chemicals and fuels from storage facilities and equipment. d. Remove all infrastructure and equipment. e. Implement erosion control measures during the rehabilitation phase, such as silt fences, and sediment basins, to prevent contaminated soil from entering waterways. v. Implement a long-term monitoring program to assess the effectiveness of remediation and rehabilitation efforts. w. No waste should be left on the site.	Applicant Project Manager	Approved decommissioning/ rehabilitation phase method statement Long-term monitoring until remediation and rehabilitation has been effected.	Throughout decommissioning Throughout rehabilitation or until the site has been fully rehabilitated	Project Manager	Weekly throughout decommissioning Monthly throughout rehabilitation	Silt trap maintained and in use, if applicable. No signs of pollution due to storm or waste water management photographs as proof. Site has been rehabilitated (the rehabilitation phase will be considered finished when the site resembles a semi-natural state, with minimum alien invasive species). No waste is left on site.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
7.20 HABITAT FRAGMENTATION, LOSS OF NATURAL VEGETATION AND ALIEN INVASION **Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed pivots; minimise disturbance to fauna and surrounding habitats.**						
a. Vegetation clearing should be restricted to areas of the pivot only, the remaining sections of the property should be rested and then a constructive grazing regime implemented to manage the non-developed areas, to best support the biodiversity. b. Alien vegetation that has grown as a result of land clearing must be removed by approved methods.	Project Manager Contractor	Approved construction method statement Implement Alien Invasive management plan	Throughout project lifetime	EO ECO	EO: Weekly during construction ECO: As specified in Section 2.4 of this EMPr.	No unauthorised vegetation clearance Alien Invasive management plan is implemented effectively
7.21 LOSS OF SPECIES OF CONSERVATION CONCERN **Impact management outcome: loss of species of conservation concern is prevented.**						
a. A search and rescue operation should be performed prior to clearing to rescue and relocated any species of conservation concern (other than protected trees). As it is not a feasible or practical option to rescue/relocate the protected trees, it's important to ensure that trees between the pivots remain undisturbed. b. Although no herbicides are used in the growing of potatoes, pesticides and fungicides are used, spot treatments of these reduce the risk of runoff and contamination of surrounding areas. A suitable management plan should be drawn up for the undeveloped areas of the property, to best support the biodiversity and maintain the integrity of the habitat within this area.	Applicant Project Manager Contractor	Obtain necessary permits prior to any construction activities or removal of vegetation Conduct search and rescue operations prior to clearing each pivot area Implement Alien Invasive Management Plan, Pesticide &	Prior to construction of each pivot	EO ECO	EO: Prior to construction of each pivot ECO: As specified in Section 2.4 of this EMPr.	Required permits and licenses are obtained prior to vegetation clearing activities. No unauthorized removal of species. Non-conformance/ incident register is up to date. Content of Management Plans.

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
c. In order to remove species listed in **Schedule 1 & 2** of the NCNCA during site clearing activities, an integrated permit application must be made to the DAERL to obtain the required permission to remove and/or translocate these species from site. A permit would also be required to destroy or translocate any nationally or provincially listed species from the site. A single permit, which covers all of these permitting requirements as well as meets TOPS regulations, is used. d. In order to remove the protected trees a license application will have to be made to the Department of Forestry, Fisheries and the Environment. e. Protected trees with active bird nests or other biodiversity significance may not be disturbed/removed without a valid Fauna Permit obtained from the provincial conservation authority (DAERL). f. Chemical Vegetation Management (Herbicides): i. Implement a**n** Herbicide Management Plan that ensures compliance with the relevant legislation, e.g., the Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (Act 36 of 1947) (FFFARSR). ii. Undertake spot treatment to avoid the loss of untargeted plant species. iii. Use low-drift application techniques, as far as possible to minimise airborne particles of pesticides/herbicides. iv. Do not apply foliar chemical applications under conditions where chemical drift may impact non-targeted species.		Fungicide Management Plan. Implement an Herbicide Management Plan (if relevant).				

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
v. Follow manufacturer's instructions when mixing and applying herbicides. vi. Use appropriate PPE when handling chemicals and herbicides. vii. Ensure that staff using chemicals are trained and aware of the risks of using chemicals. viii. Chemicals must be mixed and/or stored on impermeable and level surfaces, in demarcated areas, and as per the manufacturer's instructions. ix. All waste material and containers must be safely and properly removed/disposed of after use. x. Only use herbicides registered for a specific target species under the FFFARSR Act. xi. Prevent overuse of herbicides. xii. See Hazardous Substances **Section 7.4.1** of this table.						
7.22 ANTHROPOGENIC DISTURBANCES, INTENTIONAL AND/OR ACCIDENTAL KILLING OF FAUNA **Impact management outcome: minimise disturbance to fauna.**						
a. To mitigate vibrations caused by machinery/vehicles, ensure that activities are kept to a minimum. b. Equipment, vehicles and machinery must be serviced and kept in good working order to avoid unnecessary vibrations.	Project Manager Contractor EO	Induction presentation Toolbox talks Approved schedule and	Prior to construction and ongoing	EO ECO	EO: Prior to construction Weekly during construction	Induction presentation and toolbox talks content Employee interviews Signed attendance register of toolbox talks

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
c. A search and rescue can be conducted prior to clearing activities, for example animals such as tortoises should be moved out of harm's way. d. As the killing of herpetofauna is considered a result of ignorance, this can be ameliorated through education. The labour force involved should be educated regarding the conservation importance of herpetofauna. e. Enforce speed limits on the access roads to avoid road kills. f. Also refer to **Section 7.13** (Noise Impacts).		method statement Record keeping Conduct a search and rescue prior to clearing			ECO: As specified in Section 2.4 of this EMPr.	Record of search and rescue operation is available Equipment, vehicles and machinery are be serviced and kept in good working order, and do not create unnecessary noise/vibrations. Complaints register.
7.23 IMPACT ON BIODIVERSITY – ALIEN SPECIES INVASION (DECOMMISSIONING/ REHABILITATION PHASE)						
a. Alien vegetation that has grown in the pivot areas and disturbed land must be removed through approved methods. b. The pivot footprints need to be revegetated with local indigenous grass species.	Applicant Project Manager	Implement Alien Invasive Management Plan Approved Rehabilitation Plan	Throughout Decommissioning and Rehabilitation	Project Manager	Weekly until rehabilitation is complete	Pivot footprints are revegetated with local indigenous grass species. The rehabilitation phase will be considered finished when the site resembles a semi-natural state, with minimum alien invasive species.
7.24 IMPACTS ON HERITAGE RESOURCES (CONSTRUCTION PHASE) **Impact management outcome: limit the impact of development on heritage finds to construction activities, with the potential to document and further assess finds should they be related to broader sites.**						
DESTRUCTION OR DISTURBANCE OF IDENTIFIED STONE TOOL SITES AND FINDS (STONE TOOL SITES)	Project Manager Contractor	Implement Heritage Protocol/	Prior to construction and throughout	EO ECO	EO: Prior to construction and weekly during	The Heritage Protocol/ Chance finds procedure is

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
a. The Project Manager/ Farm Manager must remain vigilant of heritage resources during the installation of the pivots, especially in the area around Pivot 8. South African Heritage Resources Agency (SAHRA) and an Archaeologist must be alerted should stone tool finds be found in higher densities (More than 20 finds/m^2), before construction activities continues. b. A Heritage Procedure is advised to be followed should additional heritage finds or sites be encountered. **DESTRUCTION OR DISTURBANCE OF UNDISCOVERED BELOW-GROUND HERITAGE FEATURES (UNIDENTIFIED BELOW-GROUND HERITAGE FEATURES)** c. A Heritage Procedure is advised to be followed should additional heritage finds or sites be encountered. **HERITAGE PROTOCOL OR CHANCE FINDS PROCEDURE:** The Heritage Protocol or Chance Find Procedure as described below is advised to be followed should additional heritage finds or sites be encountered: • In the event of a chance find which appears of significant value to the lay person, all development activities must be temporarily halted. • Finds should not be displaced. Instead, their location should be recorded, and a short description prepared for further evaluation to follow. • A qualified Archaeologist must be consulted to, firstly, record the find and evaluate its heritage significance. The Archaeologist should provide recommendations on how to approach the finds moving forward. This may		Chance finds procedure Induction presentation Toolbox talks Record Keeping	construction of each pivot		construction of each pivot ECO: As specified in Section 2.4 of this EMPr.	implemented if any Heritage finds are noted. Records are present in the EMPr file. Content of toolbox talks

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
include recommendations for the mitigation of impacts on the heritage resources in question. • Should the Archaeologist recommend, development can resume following the application of recommendations and mitigation measures.						
7.25 LOSS OF FOSSIL HERITAGE (CONSTRUCTION PHASE) **Impact management outcome: limit the impact of development on fossil finds to construction activities, with the potential to document and further assess finds should they be found.**						
a. If fossil remains are discovered during any phase of construction, either on the surface or uncovered by excavations, the Chance Find Protocol must be implemented. These discoveries must be secured and the ECO/site manager ought to alert SAHRA (Contact details: SAHRA, 111 Harrington Street, Cape Town. PO Box 4637, Cape Town 8000, South Africa. Tel: 021 462 4502. Fax: +27 (0)21 462 4509. Web: www.sahra.org.za) so that appropriate mitigation (documented and collection) can be undertaken by a professional palaeontologist. The specialist would need a collection permit from SAHRA. Fossil material must be curated in an approved collection (museum or university) and all fieldwork and reports must meet the minimum standards for palaeontological impact studies developed by SAHRA. b. The naturally preserved remnants (or traces) of plants or animals embedded in rock are known as fossils. These plants and animals existed millions of years ago in the geologic past. Fossils are incredibly valuable and difficult to replace. It is possible to identify the environmental	ECO Project Manager Contractor EO	Induction presentation Toolbox Talks Record Keeping Implement Chance Find procedure	Prior to construction and throughout construction of each pivot	ECO EO	Prior to construction and weekly throughout construction of each pivot	Chance finds procedure is implemented if any Fossil finds are noted. Records are present in the EMPr file. Content of toolbox talks

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
conditions in a certain geographical area millions of years ago by analysing fossils. This information is intended for construction workers and foremen. It describes what to do if fossil material is discovered accidentally during vegetation clearance. c. It is the responsibility of the project's Environmental Control Officer (ECO) or site manager to train the workers and foremen on what to do if a fossil is accidentally discovered. In the absence of the ECO, a member of staff must be designated to be accountable for the effective application of the chance discovery protocol so that the conservation of fossil material is not jeopardised. d. If fossils are discovered during excavation, the following method shall be followed: • **Legislation:** o Cultural Heritage in South Africa (including all heritage resources) is protected by the National Heritage Resources Act (Act No 25 of 1999) (NHRA). According to Section 3 of the Act, all Heritage resources include "all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens". o The NHRA protects and owns the state's palaeontological legacy, which is unique and non-renewable. It is consequently the responsibility of the state to manage and protect fossils on behalf of South African citizens. According to Section 35						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
of the NHRA, palaeontological resources may not be excavated, broken, transferred, or destroyed by any development without previous assessment and a permit from the relevant heritage resources authority. • **Chance Find Procedure:** o If a chance find is made, the person responsible for the find must immediately stop working, and all work in the immediate vicinity of the find must stop as well. o The individual who discovered the item must immediately notify his or her direct supervisor, who must then notify his or her management and the ECO or site manager. The ECO or site manager must notify the relevant Heritage Agency (South African Heritage Resources Agency, SAHRA) of the discovery. (Contact information: SAHRA, 111 Harrington Street, Cape Town, South Africa. PO Box 4637, Cape Town 8000, South Africa. Fax: +27 (0)21 462 4509. Tel: 021 462 4502. Web address: www.sahra.org.za). Photographs of the find from various perspectives, as well as GPS coordinates, must be submitted to the Heritage Agency. o Within 24 hours of the discovery, a preliminary report must be sent to the Heritage Agency, which must include the following: 1) the date of finding; 2) a description of the discovery; and 3) a description of the fossil and its context						

Impact Management Actions	Implementation			Monitoring		
	Responsible Person	Method of Implementation	Timeframe for Implementation	Responsible Person	Frequency	Evidence of Compliance
(depth and position of the fossil), as well as GPS coordinates. o Photographs of the discovery (the more the merrier) must be of high quality, in focus, and accompanied by a scale. Photographs of the vertical part (side) where the fossil was discovered are also required. o Upon receipt of the preliminary report, the Heritage Agency will notify the ECO (or site manager) whether a palaeontologist rescue excavation or collection is required. o The fossil site must be guarded to prevent future damage. There should be no attempt to remove material from their environment. Stabilize the exposed items and cover them with a plastic sheet or sand bags. The Heritage organization will also be able to advise on the best way to protect the find. o If the fossil cannot be stabilized, the ECO (site manager) may carefully collect the fossil. o Once the Heritage Agency has received the written authorization, the mine may continue with the mining activity in the affected area. o Fossil finds must be placed in tissue paper and in an appropriate box while necessary care must be taken to remove any fossil material from the rescue site.						

APPENDICES

Appendix 1: Method Statements

To be completed by the Contractor, reviewed by the Environmental Control Officer and approved by the Project Manager on behalf of the Proponent/Applicant, then attached to the EMPr and stored in the Environmental Site File.

Appendix 2: Alien Invasive Control Plan

To be completed by a suitably qualified person, approved by the Environmental Control Officer and agreed upon by the Proponent/Applicant and Project Manager, then attached to the EMPr prior to construction. A copy of the Alien Invasive Control Plan must be kept in the Environmental Site File.

Appendix 3: Nutrient Management Plan

To be provided by the Project Manager, approved by the Environmental Control Officer and agreed upon by the Proponent/Applicant, then attached to the EMPr prior to construction. A copy of the Nutrient Management Plan must be kept in the Environmental Site File.

Appendix 4: Pesticide & Fungicide Management Plan

To be provided by the Project Manager, approved by the Environmental Control Officer and agreed upon by the Proponent/Applicant, then attached to the EMPr prior to construction. A copy of the Pesticide & Fungicide Management Plan must be kept in the Environmental Site File.