



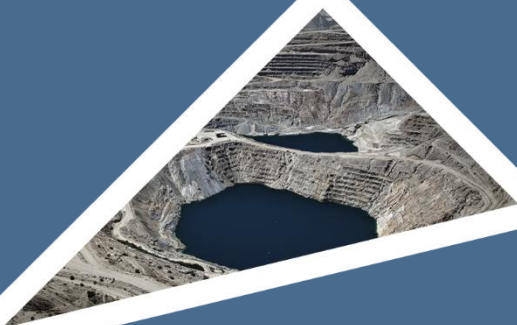
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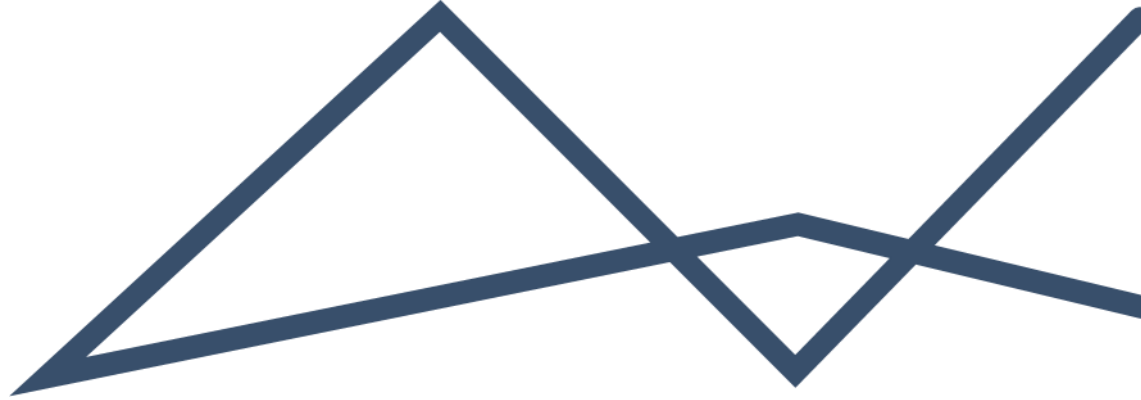
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ENVIRONMENTAL MANAGEMENT PROGRAMME

PROPOSED ACWA POWER SOLAR RESERVE REDSTONE SOLAR PHOTOVOLTAIC POWER PLANT ON THE REMAINING EXTENT OF THE FARM NO. 469, HAY REGISTRATION DIVISION, TSANTSABANE LOCAL MUNICIPALITY, ZF MGCWU DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

DFFE PRE-APPLICATION REFERENCE: 2026-05-0023





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Appendix 1: EAP Curriculum Vitae





Definitions of key terms and abbreviations

Term	Definition
Applicant	According to NEMA, the applicant is a person who has submitted an application for an environmental authorization to the competent authority and has paid the prescribed fee. This EMPr utilizes this term to refer to the person who is ultimately issued with the EA or equivalent permission and who is ultimately responsible for compliance therewith and the associated EMPr.
CEO	Contractors environmental officer
CLF	Community Liaison Forum
DFFE	Department of Forestry Fisheries and the Environment
DPM	Developers project manager
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
ECO	Environmental control officer
EIA	Environmental Impact Assessment. In instances where a Basic Assessment process has been followed to obtain the EA, then EIA refers to the Basic Assessment process and associated Basic Assessment Report.
EIA Regulations	The Environmental Impact Assessment Regulations promulgated under the NEMA, GNR982, as amended.
EMPr	Environmental Management Programme
EPRP	Emergency Preparedness and Response Plan
GHG	Greenhouse Gases
IEA	Independent Environmental Auditor
Impact Management Outcomes	The specific, measurable result that must be achieved through the implementation of impact management actions to ensure that environmental impacts are avoided, minimized, or remedied (i.e. what needs to be achieved). These are the desired end states or results that must be achieved to manage, mitigate, or enhance environmental impacts identified. They describe what success looks like in terms of environmental performance (e.g., “No contamination of surface water resources during construction”). These outcomes are measurable and auditable, forming the basis for compliance monitoring and reporting.
Impact Management Actions	A specific measure or intervention implemented to avoid, manage, or mitigate a negative environmental impact, or to enhance a positive impact, during the planning, construction, operation, or decommissioning phases of a project (i.e. what needs to be done to achieve the outcome). These are the specific measures, tasks, or interventions that must be implemented to achieve the stated impact management outcomes. They detail how the outcomes will be achieved, including operational controls, procedures,



Term	Definition
	and responsibilities (e.g., “Install silt fences and sediment traps along drainage lines before earthworks commence”)
NC	Non-compliance
NEMA	National Environmental Management Act (Act 107 of 1998)
PM	Airborne particulate matter
PPE	Personal Protective Equipment
SIA	Social Impact Assessment
SMP	Social Management Plan
TOPS	Threatened or protected species- listed under the National Environmental Management: Biodiversity Act (NEMBA), 2004, in terms of Sections 56 and 57. These species are categorized as: Critically Endangered, Endangered, Vulnerable, Protected.
WMP	Waste Management Plan.
WUL	Water Use Licence



1 INTRODUCTION

The Environmental Management Programme (EMPr) is an Integrated Environmental Management (IEM) Tool which typically is preceded by an Environmental Impact Assessment (EIA), and which aims to describe the objectives and management actions for managing and mitigating potential environmental impacts associated with a development proposal. Regulation 19 of the National Environmental Management Act (NEMA), EIA Regulations (GNR 982) requires the compilation and submission of an EMPr to the relevant Competent Authority together with the relevant Environmental Assessment Reports for consideration in the decision making on an Application for Environmental Authorisation (EA) for relevant Listed Activities.

The purpose of this EMPr is:

- to describe the impact management outcomes, including management statements;
- to identify the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development (planning and design, pre-construction, construction, post construction rehabilitation, and where relevant operation); and
- to provide a description of the relevant impact management actions which clearly defines what actions are to be taken, who is responsible for the actions, when such actions are to be undertaken, and how the implementation of such actions are to be monitored.

The ultimate objective of the EMPr is 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.

2 SCOPE OF THIS DOCUMENT

This EMPr applies to the development activity described in Section 5. 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. The EMPr also provides guidance to assist in ensuring compliance with relevant national legislative and regulatory requirements.

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. Any amendments must comply with formal amendment processes as define in the NEMA EIA Regulations.

3 DOCUMENT STRUCTURE

The structure of this document is guided primarily by the requirements for the content of an EMPr as prescribed by Appendix 4 of the NEMA EIA Regulations. Consideration has also been given to the content and structure requirements as prescribed by other guidelines, as well as EIMS's professional judgement and experience. Table 1 provides an itemised breakdown of the NEMA EIA Regulations Appendix 4 requirements together with a cross reference to the relevant section of this EMPr where this requirement is addressed.

Table 1: EMPr Structure

Appendix Reference	4 Description	Section in EMPr
Appendix 4(1)(1)(a)	Details of – (i) The EAP who prepared the EMPr; and	4 Appendix 1



Appendix Reference	4 Description	Section in EMPr
	(ii) The expertise of that EAP to prepare an EMPR, including a curriculum vitae;	
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.	5
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;	6 Figure 2
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 through 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 in the case of a closure activity, closure; and (v) Where relevant, operation activities;	7
Appendix 4(1)(1)(f)	A description of proposed impact management actions, identifying the manner in which the impact management 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; and (iii) Comply with any applicable provisions of the act regarding closure, where applicable.	10
Appendix 4(1)(1)(g)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	9 10
Appendix 4(1)(1)(h)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	9 10
Appendix 4(1)(1)(i)	An indication of the persons who will be responsible for the implementation of the impact management actions;	9 10
Appendix 4(1)(1)(j)	The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	9 10
Appendix 4(1)(1)(k)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	9



Appendix Reference	4 Description	Section in EMPr
		10
Appendix 4(1)(1)(l)	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	9
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	8.10
Appendix 4(1)(1)(n)	Any specific information that may be required by the competent authority.	N/A The competent authority has not yet requested any specific information with respect to the project or this EMPr.

It is noted that this EMPr is the culmination of an Environmental Impact Assessment (EIA) specific to the development activities. This EMPr should be read in the context of this EIA. Where relevant the content of the EIA has been extracted and summarised for inclusion in this EMPr. The EIA provides further detail on the nature and extent of the development activities, the receiving environment, and the identified and assessed impacts.

4 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

In terms of Regulation 13 of the EIA Regulations, 2014, as amended, an independent EAP, must be appointed by the applicant to manage the application. EIMS is 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 EIA's;
- Comply 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.

Table 2: EAP Details

Name of Practitioner	Mr Liam Whitlow (EAP/ reviewer)	Mr Andre van Rooyen (Candidate EAP/compiler)
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Name of Practitioner	Mr Liam Whitlow (EAP/ reviewer)	Mr Andre van Rooyen (Candidate EAP/compiler)
E-mail:	acwapv@eims.co.za	

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.

4.1 EXPERIENCE OF THE COMPILER (CANDIDATE EAP)

Andre van Rooyen is a current Environmental Assessment Practitioner with three years of working experience. He is a registered Candidate Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP) (Reg. No. 164675). He is also a Registered Candidate Environmental Assessment Practitioner (EAP) with the Environmental Assessment Practitioners Association of South Africa (EAPASA) (Reg. No. 2023/6845).

Andre has a background in Environmental Sciences, supported by relevant academic qualifications and practical work experience. He has been involved in a range of environmental assessment projects, including environmental screening, auditing, compliance evaluations, and Section 24G applications, for which he has compiled and submitted Environmental Assessment Reports and associated Environmental Management Programmes (EMPrs). These include projects for a concrete batching plant and a chrome beneficiation plant.

In addition, Andre has experience in undertaking Water Use Authorisation applications through both General Authorisation and full Water Use Licence Application processes. This includes compiling supporting documentation such as Integrated Waste and Water Management Plans. The Curriculum Vitae of the compiler responsible for the compilation of this Report is included in Appendix 1

4.2 EXPERIENCE OF THE REVIEWER (EAP)

Liam Whitlow is an Environmental Assessment Practitioner with over 24 years of experience in the environmental management field. He holds a BSc Honours degree in Environmental Management and is a Registered Professional Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP) (Reg. No. 400148/08). He is also a Registered Environmental Assessment Practitioner (EAPASA) (Reg. No. 2019/222).

Liam has extensive experience in environmental impact assessments (EIAs), having managed and contributed to complex projects across the mining, infrastructure, and energy sectors. His expertise includes environmental authorisation processes, environmental audits, due diligence assessments, and environmental monitoring programmes. He has been involved in a wide range of environmental applications, including EIAs, Basic Assessments, and Section 24G rectification processes.

In addition, Liam has experience in water use licensing, ISO 14001 environmental management systems, and the compilation and review of Environmental Management Programmes (EMPrs) and other environmental management plans. The Curriculum Vitae of the supervising EAP is included in Appendix 1



5 DESCRIPTION OF THE ACTIVITY

This Environmental Management Programme (EMPr) has been compiled for the proposed ACWA Power Solar Reserve Redstone Solar Photovoltaic (PV) Power Project, located on the Remaining Extent of Farm No. 469, Hay Registration Division, within the Tsantsabane Local Municipality and ZF Mgcawu District Municipality, Northern Cape Province. The proposed development will be located within the broader Redstone CSP project area, approximately 25 km east of Postmasburg, and is intended to provide renewable auxiliary electricity to the operational Redstone Concentrated Solar Power (CSP) facility.

The activity covered by this EMPr includes the construction, operation, maintenance and eventual decommissioning of a solar PV facility with a generation capacity of approximately 19.5 MW DC / 15 MW AC, together with an energy storage system of up to approximately 30 MWh and associated electrical and supporting infrastructure. The project footprint is approximately 19.5 ha. The proposed infrastructure includes PV panel arrays, inverter and transformer units, battery energy storage infrastructure, internal cabling, possible substation infrastructure, internal access tracks, stormwater management measures, security infrastructure and ancillary services required for construction and operation. Existing access roads, services and infrastructure associated with the Redstone CSP facility will be utilised where feasible. The final layout must remain within the assessed development footprint and must avoid or manage sensitive environmental features, including the delineated wetland and associated buffer areas, as indicated on the approved layout and sensitivity maps.

The anticipated project lifecycle includes a planning and authorisation phase, a construction phase of approximately 2 to 6 months, an operational phase aligned with the operational life of the Redstone CSP facility, and a decommissioning and rehabilitation phase at the end of the project life. This EMPr therefore provides environmental management and mitigation requirements applicable to all relevant phases of the activity.

The proposed development requires Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014, as amended. The listed activities applied for include Listing Notice 1, GN R. 983 Activity 1, relating to the development of electricity generation infrastructure from a renewable resource with an output of more than 10 MW but less than 20 MW; Activity 12, relating to infrastructure within 32 m of a watercourse; and Activity 27, relating to the clearance of 1 ha or more, but less than 20 ha, of indigenous vegetation.

This EMPr also supports the implementation of mitigation and management measures required in relation to other environmental approvals, licences and permits that may be required for the project. These include, where applicable, water use authorisation in terms of Section 21(c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998), due to the project's location within the regulated area of a wetland; permits for the removal, relocation or disturbance of protected plant species in terms of applicable biodiversity and provincial conservation legislation; heritage-related requirements, including implementation of the chance-finds procedure and compliance with any SAHRA/SAHRIS comments; waste management requirements in terms of the National Environmental Management: Waste Act, 2008; and any other permits, licences or authorisations required prior to construction.

The purpose of this EMPr is to ensure that all identified environmental impacts associated with the proposed activity are avoided, minimised, rehabilitated and/or managed to acceptable levels through the implementation of practical mitigation, monitoring, auditing and reporting measures.



6 DESCRIPTION OF THE SITE AND RELEVANT SENSITIVITIES

The proposed Redstone PV Project is located on the Remaining Extent of Farm No. 469, Hay Registration Division, within the Tsantsabane Local Municipality and ZF Mgcawu District Municipality, Northern Cape Province. The site is situated approximately 25 km east of Postmasburg and occurs within the broader Redstone CSP development area, in a landscape already influenced by renewable energy infrastructure, low-intensity grazing, mining-related activities and rural land uses.

The development footprint is approximately 19.5 ha and is located within an area characterised by generally flat to gently undulating topography, semi-arid climatic conditions, low agricultural potential and vegetation associated with the Olifantshoek Plains Thornveld. The site is considered suitable for the proposed PV development due to its proximity to the existing CSP infrastructure, the availability of existing access and support services, and the opportunity to consolidate renewable-energy infrastructure within an already modified energy-development landscape.

The key environmental sensitivities relevant to the implementation of this EMPr include the occurrence of an unchannelled valley-bottom wetland within the broader project area of influence, associated wetland buffer requirements, areas of intact indigenous vegetation, protected plant species recorded within the study area, potential fauna species of conservation concern, and heritage and palaeontological chance-find risks. The delineated wetland is regarded as the primary aquatic sensitivity and must be treated as a no-go area, together with the applicable buffer areas, unless otherwise authorised.

The aquatic assessment identified a recommended post-mitigation wetland buffer of 30 m, which must be maintained and demarcated where relevant during construction. No construction activities, laydown areas, stockpiling, waste storage, vehicle parking or unauthorised access may occur within demarcated no-go areas or sensitive buffer zones, unless specifically authorised and managed in accordance with the requirements of this EMPr and applicable permits or authorisations.

The terrestrial biodiversity assessment confirmed that the site contains indigenous vegetation and several protected plant species, although no Critical Biodiversity Areas occur within the proposed development footprint. Pre-construction search-and-rescue, permitting where required, disturbance limitation, alien invasive plant control and rehabilitation measures are therefore key management requirements for the development.

Heritage sensitivity within the development footprint is considered least concern, and no heritage resources were identified during the specialist assessment. However, a chance-finds procedure must be implemented during all ground-disturbing activities. Palaeontological sensitivity is considered moderate at a desktop level, and any fossil material uncovered during construction must be managed in accordance with the chance-finds procedure and relevant heritage authority requirements. The final construction layout must remain within the assessed (Figure 1) and authorised footprint and must be consistent with the sensitivity mapping (Figure 2) and mitigation requirements contained in this EMPr.

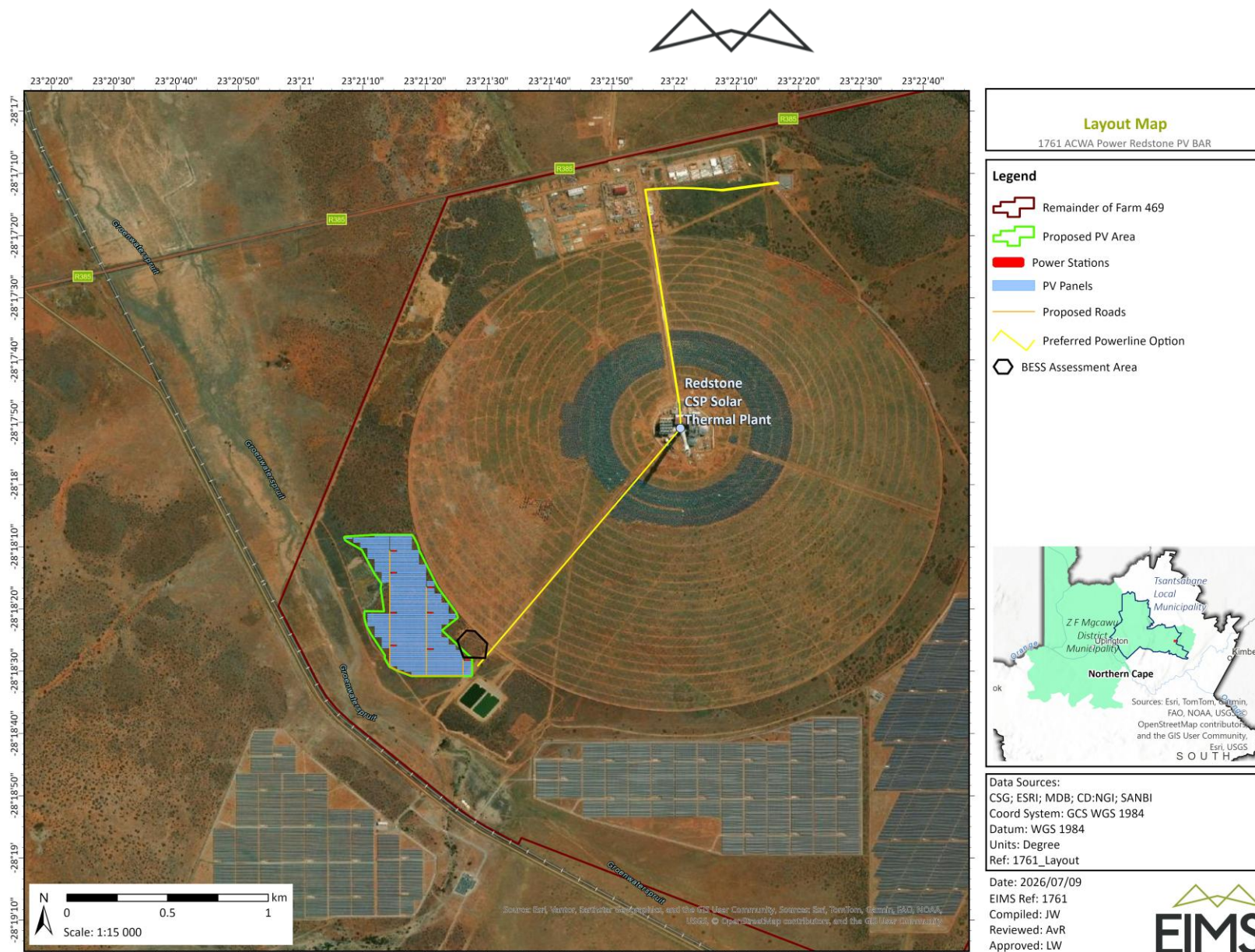


Figure 1: Project layout map

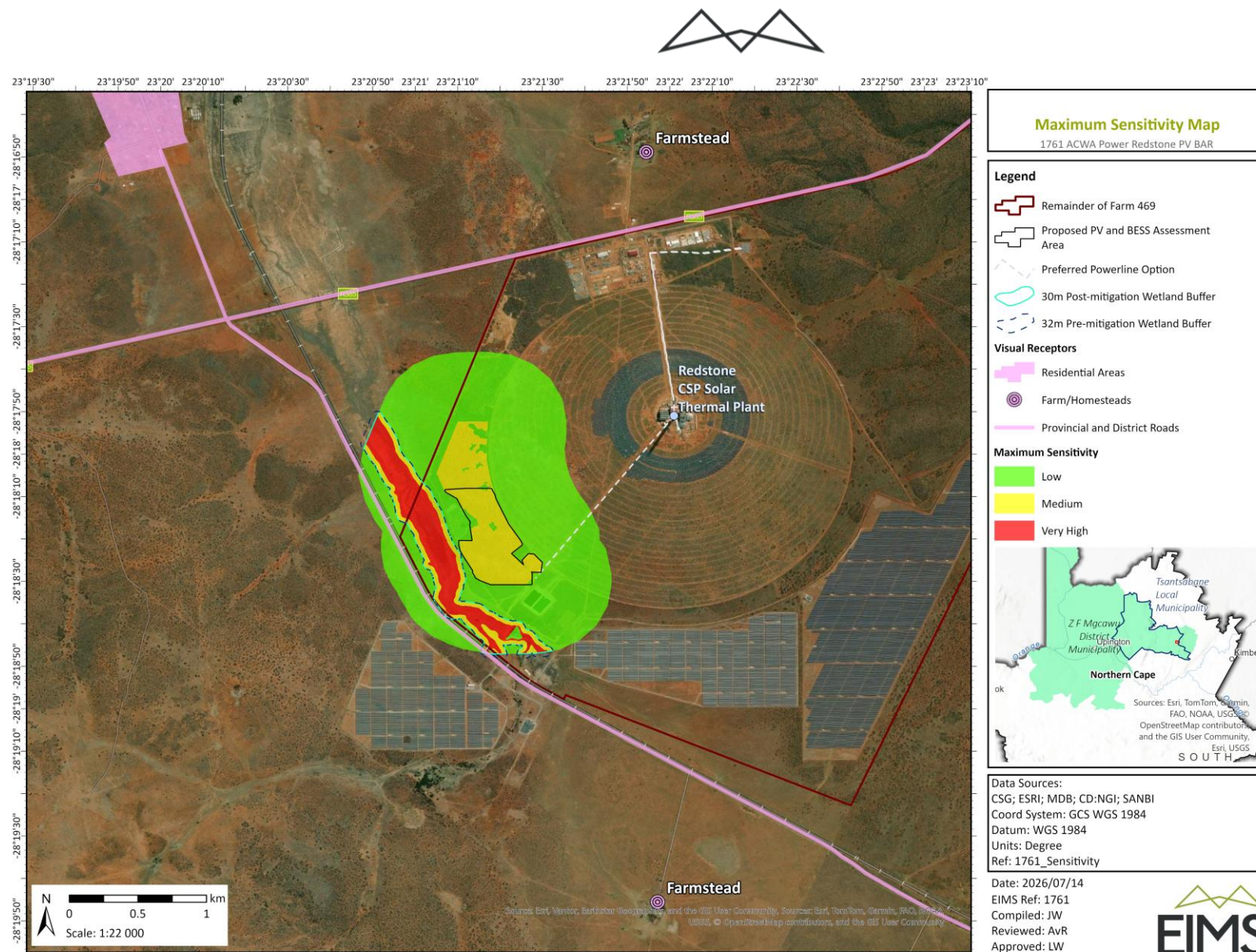


Figure 2: Site sensitivity map.



7 IDENTIFIED IMPACTS AND MANAGEMENT OUTCOMES

An environmental assessment has been undertaken as prescribed by the NEMA EIA Regulations. The EIA has identified relevant anticipated impacts and risks associated with the proposed activity. These impacts have been assessed in terms of the nature, extent, duration, magnitude, and probability and assigned an impact significance rating. The hierarchy of mitigation has been applied to the identified impacts and where possible the impacts have been avoided, or where avoidance is not possible, relevant actions for the management and mitigation have been provided. An assessment of the impact significance, post mitigation, was concluded. The impacts identified during the different phases of the activity and the significance of these impacts (post mitigation), together with the proposed impact management outcomes are listed in Table 3. These significance rating set the pre-emptive prediction of level of impact. The actual observed level of impact should be considered during the project development phases and where necessary reconsidered together with associated impact management outcomes and impacts, in consultation with the appointed Independent Auditor.

Table 3: Impact Management Outcomes.

Identified Impact	Relevant Development Phase	Post-Mitigation Significance	Proposed Impact Management Outcome
Habitat fragmentation and loss of natural vegetation	Construction; Operation	Medium Low-	Vegetation clearing and habitat disturbance are limited to the authorised development footprint, unnecessary habitat fragmentation is avoided where practicable, and ecological connectivity is maintained through layout planning and retention of natural corridors where feasible.
Establishment and spread of alien invasive plant species	Construction; Operation	Low-	Alien invasive plants are monitored and controlled through an active alien invasive management programme to prevent establishment and spread within disturbed areas, retained natural vegetation and drainage/buffer areas.
Loss or disturbance of species of conservation concern and protected plant species	Pre-construction; Construction; Operation	Medium Low-	Protected flora and species of conservation concern are identified prior to clearing, relevant permits are obtained where required, and search-and-rescue or relocation is undertaken where feasible and authorised.
Anthropogenic disturbance, displacement, injury or accidental/intentional killing of fauna	Pre-construction; Construction; Operation	Medium Low-	Fauna disturbance and mortality are minimised through pre-clearance inspections, fauna rescue where required, worker awareness training, prohibition of hunting or killing, and management of construction activities to avoid unnecessary disturbance.



Identified Impact	Relevant Development Phase	Post-Mitigation Significance	Proposed Impact Management Outcome
Soil compaction, sedimentation and disruption of freshwater ecosystem functioning	Construction; Operation	Low-	Soil compaction, erosion and sediment transport are minimised through restricted vehicle movement, stormwater management, erosion and sediment controls, rehabilitation of disturbed areas, and protection of drainage lines and associated buffers.
Indirect degradation of wetland HGM 1 and associated buffer areas	Construction; Operation; Decommissioning, Rehabilitation and Closure	Medium Low-	The wetland and associated buffer areas are protected from unauthorised access, vegetation clearing, stockpiling, refuelling, waste storage, erosion, sedimentation, altered runoff and contamination.
Alteration of runoff patterns, erosion and sedimentation affecting wetland or drainage features	Construction; Operation; Decommissioning, Rehabilitation and Closure	Low-	Natural runoff behaviour is maintained as far as practicable, stormwater is managed to prevent concentrated flows, and erosion and sediment-control measures are implemented, inspected and maintained.
Loss or disturbance of low-potential agricultural/grazing land and soil resources	Construction; Operation	Low-	Disturbance is limited to the approved development footprint, unnecessary disturbance of surrounding grazing land is avoided, soil resources are managed appropriately, and disturbed areas are stabilised or rehabilitated where feasible.
Soil erosion and soil degradation associated with vegetation clearing, earthworks and altered runoff	Construction; Operation; Decommissioning, Rehabilitation and Closure	Low-	Soil erosion and degradation are minimised through footprint control, stormwater management, erosion controls, restriction of vehicle movement to designated routes and rehabilitation of disturbed areas.
Soil contamination from hydrocarbons, chemicals, cement, wastewater or waste materials	Construction; Operation; Decommissioning, Rehabilitation and Closure	Low-	Soil contamination is prevented through bunded storage, drip trays, designated refuelling and maintenance areas, concrete washout controls, spill response procedures and lawful disposal of contaminated material.
Visual intrusion and change to landscape	Construction; Operation; Decommissioning,	Low Medium-	Visual impacts are minimised through limiting disturbance to the approved footprint, maintaining good housekeeping, rehabilitating disturbed



Identified Impact	Relevant Development Phase	Post-Mitigation Significance	Proposed Impact Management Outcome
character or sense of place	Rehabilitation and Closure		areas, using appropriate colours/finishes, controlling lighting and maintaining infrastructure in good condition.
Dust and exposed soil causing visual nuisance and vegetation impacts	Construction; Decommissioning, Rehabilitation and Closure	Low-	Dust generation and exposed soil areas are minimised through dust suppression, progressive stabilisation, limiting disturbance to active work areas and prompt rehabilitation.
Temporary employment creation and local procurement benefits	Construction	Medium High+	Local employment and procurement opportunities are maximised where feasible through contractor requirements, engagement with local structures and use of local labour and suppliers where practical.
Skills development and knowledge transfer	Construction; Operation	Medium High +	Training, mentorship and skills-transfer opportunities are provided where feasible to improve employability and support local capacity building.
Contribution to local and regional economic activity, GDP and government revenue	Construction; Operation; Decommissioning, Rehabilitation and Closure	Medium High+	Local and regional socio-economic benefits are optimised through local procurement, employment, service use, project expenditure and recovery/recycling of materials during decommissioning where feasible.
Damage to previously unidentified heritage resources	Construction	Low-	Heritage resources are protected through implementation of the chance-finds procedure, including stopping work, notifying the ECO and relevant heritage authority/specialist, and obtaining clearance before work resumes.
Damage to previously unidentified palaeontological/fossil resources	Construction	Low Medium-	Fossil resources are protected through implementation of the palaeontological chance-finds procedure and immediate notification of SAHRA or a suitably qualified palaeontologist if fossil material is uncovered.
Generation, storage and disposal of project-specific PV/BESS,	Construction; Operation; Decommissioning,	Low-	PV panels, BESS components, batteries, inverters, cabling and electrical/electronic waste are



Identified Impact	Relevant Development Phase	Post-Mitigation Significance	Proposed Impact Management Outcome
electrical and hazardous waste	Rehabilitation and Closure		segregated from general waste, safely stored, classified where required, recycled or returned to suppliers/manufacturers where feasible, and disposed of only at appropriately licensed facilities, with disposal/recycling records retained.
Battery energy storage system fire, thermal runaway or technology-specific safety incident	Planning and Design; Pre-construction; Construction; Operation	Low-	BEES-related fire, thermal runaway, emergency isolation, hazardous substance and emergency response risks are identified during final design and managed through the OHS Management Plan, Emergency Preparedness and Response Plan, manufacturer requirements, access control, signage, emergency equipment, firefighting provisions and worker training.

The specific impact management actions or mitigation measures applicable to each of these impacts are presented in Section 10.



8 ENVIRONMENTAL MANAGEMENT FRAMEWORK

The compilation of an EMPr for an activity which is likely to result in significant environmental impacts is typically compiled at the culmination of a thorough investigation into the receiving environment and the identification and assessment of likely environmental impacts (i.e. EIA). This EMPr forms part of an EA application process. This EMPr aims to comply with the requirement of Appendix 4 of the EIA Regulations, 2014. These requirements are systematically addressed in the subsequent sections of this report. The primary objectives of the EMPr are as follows:

- To promote sustainability and describe an action programme to mitigate negative impacts as far as possible;
- To be a practical document that sets out both the goals and actions required in mitigation. Though the term “mitigation” can be broad in definition, it means in this context to “allay, moderate, palliate, temper or intensify.” Mitigation of a negative impact means that its effect is reduced. Mitigation of a positive impact means that its effect is increased or optimised; and
- To indicate responsibilities for the implementation of these action items within the EMPr.

This EMPr shall be deemed to have legal and contractual standing on the basis that its contents and specifically objectives are a detailed expansion of the environmental risks and consequent requirements of the EA (if, and when issued). Where relevant the Applicant¹ is responsible for delegating responsibility for compliance to designated parties (internal or external). Such delegation must be legally binding to the extent relevant.

The objectives and targets in this EMPr are further guided by the NEMA, and specifically by the EIA Regulations. The underlying principles of sustainable development are the ultimate objectives and target of this report. The environmental assessment process and this consequent EMPr includes measures to ensure the development activity complies with the following principles, as instilled in the NEMA, amongst others:

- i. That the disturbance of ecosystems and loss of biological diversity are minimised and remedied;
- ii. That pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;
- iii. That waste is avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;
- iv. That a risk-averse and cautious approach is applied, which considers the limits of current knowledge about the consequences of decisions and actions; and
- v. That negative impacts on the environment and on people’s environmental rights be anticipated, prevented and remedied.

An effective EMPr is not a static and isolated management tool and should rather be implemented in a systematic and dynamic manner. The EMPr should be supported by senior management and involve engagement between the applicant, its contractors and workers, and relevant external stakeholders (including the project affected communities).

8.1 ENVIRONMENTAL MANAGEMENT PRINCIPLES

NEMA establishes a general framework for environmental law, in part by prescribing national environmental management principles that must be applied when making decisions that may have a significant impact on the environment. These principles are briefly summarised below:

¹ According to NEMA, the applicant is a person who has submitted an application for an environmental authorization to the competent authority and has paid the prescribed fee. This EMPr utilizes this term to refer to the person who is ultimately issued with the EA or equivalent permission and who is ultimately responsible for compliance therewith and the associated EMPr.



8.1.1 HOLISTIC PRINCIPLE

The Holistic principle, as defined by NEMA (Section 2(4) (b)) requires that environmental management must be integrated, acknowledging that all elements of the environment are linked and inter-related and it must take into account the effect of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option (defined below in Section 8.1.2). Holistic evaluation does not mean that a project must be looked at as a whole. It rather means that it must be accepted that there is an all-inclusive whole into which a project is introduced. If the indications are that the project could have major adverse effects, the project must be reconsidered and where appropriate, re-planned or relocated to avoid an adverse impact or to ensure a beneficial impact.

8.1.2 BEST PRACTICABLE ENVIRONMENTAL OPTION

When it is necessary to undertake any action with environmental impacts, the different options that could be considered for the purpose must be identified and defined. The Best Practicable Environmental Option (BPEO) is defined in NEMA as “the option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.” Other guidelines typically used for environmental management in terms of other legislation include BPM which is the Best Practicable Means and BAT which is the Best Available Technology.

8.1.3 SUSTAINABLE DEVELOPMENT

The concept of sustainable development was introduced in the 1980's with the aim to ensure that the use of natural resources is such that our present needs are provided without compromising the ability of future generations to meet their own needs. The constitution of South Africa is built around the fact that everyone has the right to have the environment protected through reasonable legislative and other measures that secure ecologically sustainable development. The National Environmental Principles included in the NEMA require development to be socially, environmentally and economically sustainable.

8.1.4 PREVENTATIVE PRINCIPLES

The preventative principle is fundamental to sustainable development and requires that the disturbance to ecosystems and the pollution, degradation of the environment and negative impacts on the environment be avoided, or, where they cannot be altogether avoided, are minimised and remedied.

8.1.5 THE PRECAUTIONARY PRINCIPLE

The precautionary principle requires that where there is uncertainty, based on available information, that an impact will be harmful to the environment, it is assumed, as a matter of precaution, that the said impact will be harmful to the environment until such time that it can be proven otherwise. The precautionary principle requires that decisions by the private sector, governments, institutions and individuals need to allow for and recognise conditions of uncertainty, particularly with respect to the possible environmental consequences of those decisions. In South Africa, the DWS (then DWAF) adopted a BPEO guideline in 1991 for water quality management and in 1994 in the Minimum Requirements document for waste management.

In terms of DWAF Minimum Requirements for the Handling and Disposal of Hazardous Waste, 1994, the precautionary principle is defined as, “Where a risk is unknown; the assumption of the worst-case situation and the making of provision for such a situation.” Here the precautionary principle assumes that a waste or an identified contaminant of a waste is “both highly hazardous and toxic until proven otherwise.”

In the context of the EIA process in South Africa, the precautionary principle also translates to a requirement to provide sound, scientifically based, information that is sufficient to provide the decision-making authority with reasonable grounds to understand the potential impacts on the environment, the extent thereof and how impacts could be mitigated. If such information is not adequate for this purpose, the relevant authority cannot be satisfied as is required and then the authority should require that further information be collected and provided.



8.1.6 DUTY OF CARE AND CRADLE TO GRAVE PRINCIPLE

In terms of the NEMA Section 28, *“Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.”*

By way of example, the principle of “duty of care” in terms of waste management emphasises the responsibility to make sure that waste is correctly stored and correctly transported, as it passes through the chain of custody to final point of disposal. This means that waste must always be stored safely and securely. The company removing and disposing of waste also holds the responsibility to hold the relevant licenses, and that waste is transported alongside the necessary paperwork.

“Cradle to Grave” refers to the responsibility a company takes for the entire life cycle of a product, service or program, from design to disposal or termination. Section 2(4)(e) explicitly states that companies are responsible for the environmental health and safety consequences of a policy, programme, project, product, process, service, or activity throughout its life cycle.

8.1.7 POLLUTER PAYS PRINCIPLE

The “polluter pays principle” holds that the person or organisation causing pollution is liable for any costs involved in cleaning it up or rehabilitating its effects. It is noted that the polluter will not always necessarily be the generator, as it is possible for responsibility for the safe handling, treatment or disposal of waste to pass from one competent contracting party to another. The polluter may therefore not be the generator but could be a disposal site operator or a transporter. Through the ‘duty of care’ principle, however, the generator will always be one of the parties held accountable for the pollution caused by the waste. Accordingly, the generator must be able to prove that the transferral of management of the waste was a responsible action. The polluter pays principle acceding to NEMA dictates that “the cost of remedying pollution, environmental degradation and consequent adverse effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.”

8.2 DUTY OF CARE RESPONSIBILITIES

Section 28 of the NEMA makes provision for duty of care, and remediation of environmental damage. The binding principles are described below:

1. Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.
 - (1A) Subsection (1) also applies to a significant pollution or degradation that-
 - a) occurred before the commencement of this Act;
 - b) arises or is likely to arise at a different time from the actual activity that caused the contamination; or
 - c) arises through an act or activity of a person that results in a change to pre-existing contamination.
2. Without limiting the generality of the duty in subsection (1), the persons on whom subsection (1) imposes an obligation to take reasonable measures, include an owner of land or premises, a person in control of land or premises or a person who has a right to use the land or premises on which or in which-
 - a) any activity or process is or was performed or undertaken; or
 - b) any other situation exists, which causes, has caused or is likely to cause significant pollution or degradation of the environment.



3. The measures required in terms of subsection (1) may include measures to-
 - a) investigate, assess and evaluate the impact on the environment;
 - b) inform and educate employees about the environmental risks of their work and the manner in which their tasks must be performed in order to avoid causing significant pollution or degradation of the environment;
 - c) cease, modify or control any act, activity or process causing the pollution or degradation;
 - d) contain or prevent the movement of pollutants or the cause of degradation;
 - e) eliminate any source of the pollution or degradation; or
 - f) remedy the effects of the pollution or degradation.

8.3 FAILURE TO COMPLY WITH ENVIRONMENTAL CONSIDERATIONS

Within the provisions of the relevant environmental legislation, there are a number of penalties for non-compliance or offences. Below a few extracts are presented for information purposes, however these must not be read in isolation, and the reader is reminded that there are other Acts, or sections of Acts, that may be applicable to the relevant project:

- National Environmental Management Act:
 - NEMA Section 49B(1): A person convicted of an offence in terms of section 49A(1)(a), (b), (c), (d), (e), (f) or (g) is liable to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, or to both such fine or such imprisonment- this includes commencing with a listed activity without an EA or the non-compliance with conditions of any EA and associated EMPPr;
 - NEMA Section 49B(2): A person convicted of an offence in terms of section 49A(1)(i), (j) or (k) is liable to a fine not exceeding R5 million or to imprisonment for a period not exceeding 5 years, and in the case of a second or subsequent conviction to a fine not exceeding R10 million or to imprisonment for a period not exceeding 10 years, and in both instances to both such fine and such imprisonment;
 - NEMA Section 49B(3): A person convicted of an offence in terms of section 49A(1)(h), (l), (m), (n), (o) or (p) is liable to a fine or to imprisonment for a period not exceeding one year, or to both a fine and such imprisonment;
- National Water Act:
 - NWA Section 151 (1c): No person may fail to comply with any condition attached to a permitted water use under this Act;
 - NWA Section 151 (2): Any person who contravenes any provision of subsection (1) is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and, in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment;
- National Environmental Management: Biodiversity Act:
 - NEM:BA Section 102 (1): A person convicted of an offence in terms of section 101 is liable to a fine not exceeding R10 million, or an imprisonment for a period not exceeding ten years, or to both such a fine and such imprisonment.
- National Environmental Management: Waste Act:
 - NEM:WA Section 68 (1): A person convicted of an offence referred to in section 67(1)(b), (c), (d), (e), (f), (i), (j), (k) or (l) or section 67(2)(a), (b), (c), (d) or (e) is liable to a fine not exceeding R5 000 000 or to imprisonment for a period not exceeding five years, or to both a fine and such



imprisonment, in addition to any other penalty or award that may be imposed or made in terms of the National Environmental Management Act;

- NEM:WA Section 68 (2): A person convicted of an offence referred to in section 67(1)(b), (c), (d), (e), (f), (i), (j), (k) or (l) or section 67(2)(a), (b), (c), (d) or (e) is liable to a fine not exceeding R5 000 000 or to imprisonment for a period not exceeding five years, or to both a fine and such imprisonment, in addition to any other penalty or award that may be imposed or made in terms of the National Environmental Management Act;
- NEM:WA Section 68 (3): Any person convicted of an offence referred to in section 67(1)(m) is liable to a fine or to imprisonment for a period not exceeding six months or to both a fine and such imprisonment;
- NEM:WA Section 68 (4): A person who is convicted of an offence in terms of this Act and who persists after conviction in the act or omission that constituted the offence commits a continuing offence and is liable on conviction to a fine not exceeding R1 000 or to imprisonment for a period not exceeding 20 days, or to both such fine and such imprisonment, in respect of each day that person persists with that act or omission;

A procedure for 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 before the project commences, included in the tender documents and contracts, and made clear to all project workers. The system may include that the independent Environmental Control Officer (ECO) can be authorized to impose spot fines on the Contractor and/or his subcontractors for any of the defined transgressions. Such fines should be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental specifications and or legal obligations.

8.4 ROLES AND RESPONSIBILITIES

The effective implementation of this EMPr depends on clearly defined roles, responsibilities, and reporting lines within an established institutional framework. This section provides guidance on the key environmental roles and associated reporting structures; however, project-specific requirements will ultimately determine the appointment of designated personnel to fulfil these roles. It is important to note that, in the absence of a formally appointed individual—such as an Environmental Control Officer (ECO)—the holder or applicant of the EA or associated enabling permission remains accountable for ensuring that all duties assigned to such roles in this document are carried out. This approach ensures accountability, promotes effective communication, and supports compliance with legal and regulatory obligations throughout the project lifecycle.

Roles and responsibilities presented herein are broad and must be read in conjunction with the specific roles and responsibilities identified in Section 10 pertaining to specific impact management actions.

8.4.1 PROJECT APPLICANT/PROPONENT

The applicant is the principal party (Proponent) of the project and is the Holder of the relevant approvals (Authorisations, Licences and Permits). The legal accountability for correct implementation of the requirements of the relevant approvals, and this 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 project (e.g.: Project Manager, ECO, etc). The key personnel will be tasked with ensuring that the various contractors/developers comply with the necessary provisions of the approvals and EMPr;
- Ensure that the various contractors and applicable sub-contractors appoint a suitably qualified, competent Environmental Officer (CEO) that will be responsible for among others, ensuring daily compliance with the approvals and EMPr throughout the execution of the relevant project components;
- Notify the relevant competent authority of changes in the development activities resulting in significant environmental impacts;



- Assess the various contractor's environmental performance during the survey, in consultation with the DPM and ECO;
- Ensure compliance with relevant environmental legislation and associated regulations;
- To implement the projects as per the approved project plan;
- To ensure that implementation is conducted in an environmentally acceptable manner;
- To inform and educate all employees about the environmental risks associated with the different activities that should be avoided during the survey process and lessen significant impacts to the environment;

The Applicant is responsible for the development and implementation of the EMPr and, where relevant, ensuring that the conditions in the relevant approvals are satisfied. Where 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.

8.4.2 DEVELOPERS PROJECT MANAGER

The developers project manager (DPM) is the duly appointed representative of the EA holder for the purposes of ensuring compliance with the EMPr and other applicable conditions (authorisation, permits, and /or licences).

During the development, it is envisaged that there may be several contractors and sub-contractors undertaking various activities on the project. The DPM would oversee all contractors and sub-contractors from a project management point of view. The roles and responsibilities of the DPM typically include the following:

- Roles:
 - The DPM acts on behalf of the Applicant regarding the administration of contracts to sub-contractors, etc. and will have overall responsibility for the management of the project and the implementation of the EMPr on behalf of the EA holder.
 - Where required, an environmental control officer (ECO) must be contracted by the DPM to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and other applicable conditions. The DPM is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent.
- Responsibilities:
 - Be fully conversant with the conditions of the EA and other applicable permissions, authorisations and licences.
 - Ensure that all stipulations within the EMPr are communicated and adhered to by the EA holder and its Contractor(s).
 - Issuing of site instructions to the Contractor for corrective actions required.
 - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings.
 - Overall management of the project and EMPr implementation.
 - Ensure that periodic environmental audits are undertaken on the project implementation.
 - Ensure all permits, authorisations and licenses are obtained, monitored and adhered to.
 - Arrange that the final environmental audit for construction is conducted by an independent auditor/consultant in accordance with the conditions of EA.



8.4.3 ENVIRONMENTAL CONTROL OFFICER

The ECO is appointed by the Applicant or the DPM and must be independent from the Applicant and the Contractors and remains appointed for the duration of the activity. The ECO must have a tertiary qualification in an Environmental Management or appropriate field and must have an appropriate level of experience.

The ECO provides feedback to the DPM regarding all environmental matters. The ECO's key role is auditing the implementation of the conditions contained in the EA, EMPr and all other relevant permits obtained in connection with the project. For the purposes of implementing the conditions contained herein, the ECO should be appointed sufficiently in advance of commencement of development 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.

The roles and responsibilities of the ECO typically include the following:

- Roles
 - The ECO must have appropriate training and experience in the implementation of environmental management specifications.
 - The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts.
 - The Contractor, Contractor's Environmental Officer and the Environmental Officer are answerable to the ECO for non-compliance with the Performance Specifications as set out in the EMPr and other applicable conditions. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise.
 - The ECO is also required to conduct compliance audits, verify the monitoring reports submitted by the Contractor's Environmental Officer.
 - The ECO is to provide feedback to the DPM regarding all environmental matters. The DPM in turn reports back to the Applicant, the Contractor, and Registered Interested and Affected Parties (I&APs), as required.
 - Issues of non-compliance raised by the ECO must be taken up by the PM, and resolved with the Contractor as per the conditions of contract.
 - Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the PM.
 - The ECO must also, as specified by the EA, report to the Competent Authority/ies (CA) as and when required.
 - Further note, the ECOs function is not limited to the construction phase alone, but is also an active role during the operational and later phases of the project where applicable.
- Responsibilities:
 - Be aware of the findings and conclusions of all BA documentation, and EA and licenses related to the development.
 - Be familiar with the recommendations and mitigation measures of this EMPr.
 - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them.



- Undertake regular and comprehensive site inspections/compliance audits of the construction site according to the EMPr and applicable licenses in order to monitor compliance as required.
- Educate the construction team about the management measures contained in the EMPr and environmental licenses.
- Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective.
- Monitoring the performance of the contractors using an environmental compliance checklist and ensuring compliance with the EMPr and associated method statements.
- In consultation with the DPM order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses, or have not adequately remedied such.
- Issuing of site instructions (in consultation with the DPM) to the contractor for corrective actions required.
- Compile regular ECO reports highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr. ECO reports must be submitted to the DPM and where applicable be available for the Environmental Audits.
- Validating the regular site inspection reports, which are to be prepared by the CEO.
- Validating the findings of the regular environmental internal audits on the CEO which are to be prepared by the EO.
- To monitor and review all environmental incidents (spills, impacts, legal transgressions etc.) and corrective and preventive actions taken in the environmental incident log, with inputs provided by the CEO.
- Checking the CEO's public complaints register in which all complaints are recorded, as well as action taken.
- Assisting in the resolution of conflicts.
- Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the contractor and/or sub-contractors.
- In case of non-compliances, the ECO must first communicate this to the DPM, who has the power to ensure this matter is addressed in accordance with the relevant legislative requirements. Should no action or insufficient action be taken, the ECO may report this matter directly to the authorities as non-compliance.
- Maintenance, update and review of the EMPr with due consideration of the NEMA processes applicable thereto.
- Communication of all modifications to the EMPr to the relevant stakeholders.
- Facilitate and advise on the environmental audits.

It is important to note that where opportunity for interpretation occurs within the conditions of this EMPr, the interpretation of the ECO will take preference. If necessary further clarification may be sought from the relevant competent authority.

8.4.4 CONTRACTOR

The contractor is usually a third party appointed by the applicant/DPM to undertake the actual development activities. In instances where the Applicant will be implementing the project activities then the obligations and



responsibilities assigned to the contractor will fall on the applicant. For the purposes of this section, any contractor (regardless of who appointed them) is referred to as the “contractor”.

The relevant contractors are answerable to the DPM and ECO for all environmental issues associated with the project. 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 and ensure that all his employees and sub-contractors appointed by him/her are familiar with the EMPr.

The roles and responsibilities of the Contractor/s include the following:

- Roles:
 - 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.
 - External contractors must ensure compliance with this EMPr while performing the onsite activities as per their contract with the EA holder.
 - The contractors are required, where specified, to provide method statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development of the project.
 - The main contractor that is appointed by the EA holder and has a signed contract with the EA holder must appoint a contractor’s environmental officer (CEO). The CEO of the main contractor will then be responsible for all sub-contractors working under the main contractor in terms of verifying that they abide by the requirements of the EMPr.
- Responsibilities:
 - Implementation and compliance with recommendations and conditions of the EA and EMPr, including providing the contractor’s environmental protection policy and the specific method statements for the project.
 - Ensure all site staff are trained and kept updated in terms of the EA, EMPr and other legal requirements.
 - Project delivery and quality control for the development services as per appointment.
 - Employ a CEO to monitor and report to ECO on the activities on-site during the construction or contracted period.
 - Ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely.
 - Attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones.
 - Ensure that contractors’ staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in this EMPr, to the satisfaction of the ECO.

8.4.5 CONTRACTOR ENVIRONMENTAL OFFICER

The principal contractor shall appoint a Contractors Environmental Officer (CEO), who is responsible for implementation of the EMPr. Depending on the complexity of the project the principal contractor may appoint and assign a CEO who is responsible for applying the CEO duties for the principal contractor as well as associated sub-contractors. The scope of the CEO must be such that the CEO is adequately resourced to be able to



effectively implement the specified roles and responsibilities. Should the CEO delegation or assignment not be adequate then the DPM may issue instruction to the contractor to supplement the resources².

The Contractor must ensure that the Contractor's EO is suitably qualified and competent to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other Contractors, labourers, the ECO and the public (if necessary). The Contractor's EO ensures that all sub-contractors working under the Contractor and sub-contractors abide by the requirements of the EMPr. The costs related to the implementation of the EMPr will be the responsibility of the relevant Contractor/ sub-contractor.

The roles and responsibilities of the CEO/s include the following:

- Roles:
 - The CEO's primary role is to coordinate the environmental management activities of the contractor on site and to be responsible for on-site implementation of the EMPr (or relevant sections of the EMPr) applicable to the contractor.
 - The CEO can be a dedicated environmental officer; or an independent consultant.
 - The contractor must ensure that the CEO is suitably qualified and experienced to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site contractors, labourers, the ECO and the public.
 - The CEO ensures that all sub-contractors working under the contractor abide by the requirements of the EMPr.
 - The contractor is answerable to the DPM and ECO for all environmental issues associated with the project.
 - Contractor performance will, amongst others, be assessed on health, safety and environmental management criteria.
- Responsibilities:
 - Ensure all their staff are aware of the relevant environmental requirements, conditions and constraints with respect to all of their activities on site.
 - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA, EMPr, method statements and/or other licences and permits.
 - Review the contractors safe work procedures/risk assessments/induction training/DSTI's (daily safe task instruction) during the survey and include information relating to the relevant environmental risks and appropriate mitigation measures;
 - Establishing and maintaining an environmental incident and non-compliance register;
 - To record, implement and monitor all environmental incidents (spills, impacts, legal transgressions etc.) and corrective and preventive actions taken in the incident and non-compliance register.
 - Establishing and maintaining a stakeholder grievance or complaints register;
 - Respond to enquiries and requests from the ECO.
 - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes.

² It is noted that where impact management outcomes and associated management actions relate to post construction phases and there is not a specific contractor or implementing agent, then the role of the CEO can, where applicable, be allocated to an internal representative of the applicant or proponent.



8.4.6 ENVIRONMENTAL AUDITOR

The Independent Environmental Auditor (IEA) is an impartial and suitably qualified professional appointed to evaluate and verify compliance with the conditions of the Environmental Authorisation (EA), the approved Environmental Management Programme (EMPr), and any other relevant environmental obligations. The IEA operates independently of the project proponent or applicant, contractor, CEO, and any party with a vested interest in the activity, ensuring objectivity and transparency in the auditing process.

The responsibility of the IEA includes the following:

- Roles:
 - Independent compliance monitoring and reporting to the competent authorities.
- Responsibilities
 - Undertake audits in accordance with Regulation 34 of the NEMA EIA Regulations, 2014 (as amended) to determine compliance with the EA, EMPr, and closure plan (if applicable).
 - Ensure audits are performed at the frequency specified in the EA or, if not specified, at intervals not exceeding five years.
 - Compile audit reports in line with the requirements of Appendix 7 of the NEMA EIA Regulations, including findings, non-compliances, corrective actions, and recommendations for improvement.
 - Confirm that the report reflects accurate, evidence-based observations and professional judgment.
 - Declare independence and confirm no conflict of interest in relation to the audited activity, except for fair remuneration for services rendered.
 - Ensure that remuneration is not linked to approval or decision-making outcomes.
 - Submit or ensure the submission of the audit report to the relevant Competent Authority/ies within the prescribed timeframe.

The IEA role as well as the ECO role represent independent and objective oversight. As such, depending on the nature of the specific activity the role of the ECO and the IEA may be assigned to one specific person or entity. The key distinction between the IEA and the ECO is that the IEA will be the role that prepares and submits the Environmental Audit Report as prescribed by regulation 34 of the EIA Regulations.

8.5 DOCUMENT CONTROL

A formal document control system should be established. 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.

The responsibility for establishing a suitable document control system rests with the DPM.



8.6 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 DPM 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.

8.7 RECORDING AND RESPONDING TO NON-COMPLIANCES

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

- Inspections of the activities;
- Monitoring of selected environmental quality variables (where relevant);
- Audits of the activities and relevant documentation; and
- Reporting.

An environmental incident and non-compliance (NC) register must be prepared and maintained by the CEO throughout the relevant project activity phases to track and monitor environmental concerns, incidents, and non-compliances. The register must include details of date, location (coordinates), 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 CEO in the incident and non-compliance register. This register shall be maintained by the CEO and will be sent to the Applicant or DPM, Contractor, and ECO on a regular basis. The DPM shall ensure that the responsible party takes the necessary corrective actions. NCs' may only be closed out in the register by the ECO upon confirmation that adequate corrective action has been taken and/or documented proof provided. The register should be utilised to measure overall environmental performance.

8.8 ENVIRONMENTAL INCIDENTS AND NON-COMPLIANCE

For the purposes of this project, an environmental incident can be divided into three levels, i.e. major, medium and minor. All environmental incidents shall be recorded in the incident and non-compliance register. Definitions of environmental incidents are provided in Table 4.

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

Non-Compliance	An Environmental Non-Compliance (NC) refers to any failure to adhere to the conditions, commitments, or requirements stipulated in an Environmental Authorisation (EA), Environmental Management Programme (EMPr), or applicable environmental legislation. Such non-compliance may result in environmental harm, legal liability, or reputational risk for the project proponent. Environmental non-compliance encompasses any deviation from approved environmental management measures, legal obligations, or performance standards that could directly or indirectly lead to adverse environmental, health, or safety outcomes. Key elements include: 1. Deviation from Approved Measures ○ Failure to implement specified impact management actions or monitoring requirements as outlined in the EMPr or EA. 2. Contravention of Legal Obligations ○ Breach of principles under the National Environmental Management Act (NEMA), EIA Regulations, or other sector-specific environmental laws. 3. Failure to Meet Performance Outcomes
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	○ Inability to achieve the impact management outcomes defined in the EMP, such as biodiversity protection, pollution prevention, or rehabilitation targets. 4. Unauthorized Activities ○ Commencing or continuing listed activities without obtaining the necessary environmental authorisation or permits. 5. Deviation from Work Standards or Procedures ○ Any departure from established work practices, operational procedures, or management system requirements that could cause: ▪ Injury or illness to personnel or communities ▪ Damage to the workplace or surrounding environment (including marine or aquatic ecosystems) ▪ Legal transgression or regulatory breach.
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 must 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.
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.
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.
Non-compliance	Any failure to adhere to the conditions, commitments, or requirements stipulated in an EA, EMP, or relevant environmental legislation. Key elements of an NC may include: • Deviation from approved measures: Not implementing the specified impact management actions or monitoring requirements. • Contravention of legal obligations: Breaching NEMA principles, EIA Regulations, or sector-specific environmental laws. • Failure to meet performance outcomes: Not achieving the impact management outcomes defined in the EMP. • Unauthorized activities: Commencing or continuing listed activities without proper environmental authorization.

The following incident reporting procedures shall apply to this project:

- All environmental incidents shall be reported to CEO, and the ECO, and shall be recorded in the incident and non-compliance register;



- An incident and non-compliance report shall be completed by the relevant party responsible for the incident or non-compliance for all medium and major incidents and the report shall be submitted to the DPM and the ECO as soon as possible but preferably no later than 5 calendar days of the incident;
- The ECO shall in consultation with the CEO advise on the appropriate measures and timeframes for corrective action; and
- 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 Section 30(3) of the NEMA. The Applicant shall engage the ECO who shall assess all major incidents and shall advise the Applicant when any such incident must be reported to the authorities as per the above requirement.

8.9 REVIEW AND REVISION OF THE EMPr

It is important to note that this EMPr is made legally binding on the Applicant through the relevant approvals. 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 may 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);
- Secondary impacts occur as a result of the mitigation measures;
- Instances where the implementation of the specified management, as a result of changes in circumstances, may become impractical or unreasonable to implement; and
- Where the outcome of an Environmental Audit has identified shortcomings in the EMPr or associated compliance.

The Applicant 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 Applicant, in consultation with the DPM and ECO, to ensure that all personnel are performing according to the requirements of the document control procedure, and to initiate the revision of controlled documents, when required by changes in process or operations.

The ECO must undertake a risk assessment of any proposed changes to the EMPr. This risk assessment must be included in the applicable environmental audit report undertaken by the IEA, and where applicable supported by the necessary proof of public consultation. It is important to note that if alterations and/or amendments are required these may only be affected in accordance with the relevant legal processes. The present legislation requirements stipulate that once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

1. Amendments to the impact management outcomes must be made in line with the process as contemplated in Regulation 37 of the EIA Regulations; and
2. Amendments to impact management actions must be made in line with the process contemplated in Regulation 36 of the EIA Regulations.

Prior to initiating or implementing any EMPr amendments the relevant Competent Authority should be engaged to confirm the correct process.



8.10 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 applicable staff are informed of their requirements and obligations pertaining to the relevant approvals and this EMPr and any environmental risk which may result from their work.

The DPM 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 can comply 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 obligations.

The DPM and contractor, with guidance from the ECO, shall ensure that adequate environmental training takes place. All employees shall have been given 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.

The specific requirements for environmental training include:

- Environmental Induction Training: All workers must receive induction training which shall be presented by the Contractors Environmental Representatives. The induction training must include an environmental management component which will be prepared by the CEO and presented where possible by the CEO. The training material must include general environmental awareness with an overview of the approved EMPr and applicable approvals. Health and safety expectations including communication and reporting to key personnel, including incidents and during emergencies, should also be outlined. Any key sensitive environmental areas or features must be identified and described in this training. The Induction Training Material must be reviewed and approved by the ECO;
- Regular Environmental Toolbox Talks will be prepared by the CEO to cover a range of environmental topics and must be presented to relevant staff during applicable times during the implementation of the development activities. The aim of these toolbox talks will be to inform employees of general environmental requirements pertaining to specific activities, as well as specific EMPr and approval requirements and obligations. The ECO shall review environmental toolbox talks on a periodic basis to ensure the material is relevant and appropriate. The ECO may identify supplementary training or additional topics that must be covered;
- Informal training of all relevant staff is also required on an on-going basis through informal discussions, on-site supervision and through facilitation of day-to-day activities. Such training must be given or otherwise facilitated by the CEO; and
- The CEO must review all safe work procedures/risk assessments/DSTI's (daily safe task instruction) from the safety department and include the relevant environmental risks and appropriate mitigation measures where necessary. Since the above procedures are specific to the applicable activity being undertaken, the inclusion of environmental measures aims to ensure each activity is undertaken in an environmentally responsible manner.

Training must include as a minimum the following topics:

- EA and EMPr conditions and roles/responsibilities (tailored to specific teams depending on their individual roles).
- Emergency preparedness and response procedures.
- Fire prevention and response.
- Procedures/ requirements for working in proximity to sensitive areas.
- Waste management.



- Water management and conservation.
- Code of conduct for interacting with internal and external stakeholders.
- Heritage sites: known heritage sensitives and associated controls as well as potential unknown heritage features and the implementation of the Chance Finds Procedure.

8.11 EMERGENCY RESPONSE PLAN

The DPM and contractor must 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 practice 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.

The DPM and Contractor shall be required to develop and implement an Emergency Preparedness and Response Plan (EPRP) prior to commencing work. The Applicant 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 DPM 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. It is understood that integrated emergency response plans that form part of the operation and management of the Redstone CSP will be utilised.

8.12 SPILL RESPONSE PROCEDURE

The DPM and 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 to the relevant supervisor and CEO (this requirement must be including 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 shall be disposed of as hazardous waste at a suitably licensed waste disposal facility;
- The CEO shall record details of the spill in their respective incident and non-compliance register;
- Photographic evidence shall be obtained of the spill clean-up; and
- Relevant waste manifests retained.

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 Applicant must also, (as per Section 30 of the NEMA) notify the Director-General (DWS, Competent Authority, DFFE), 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.

8.13 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 because of the proposed activities taking place are provided below:

- Ensure that the environmentally sensitive areas are adequately understood by applicable staff and adequately demarcated;
- 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.

9 MONITORING AND AUDITING

Effective monitoring and auditing are essential components of this Environmental Management Programme (EMPr), ensuring that all impact management actions are properly implemented and maintained throughout the project life cycle. This section outlines the method of monitoring the implementation of the impact management actions, the frequency of monitoring the implementation of the impact management actions, the mechanism for monitoring compliance with the impact management actions, and a program for reporting on compliance. Together, these elements provide a structured approach to safeguarding public health and the environment, enabling timely identification of issues and facilitating continuous improvement in environmental performance.

The sub-sections below set out the requirements for compliance monitoring, auditing and reporting as well as the required environmental monitoring necessary to quantify and verify the impact on the environment.

9.1 AUDITING AND REPORTING PROCEDURES

Reporting procedures must be developed at the start of the project, for conveying information from the compliance 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.

All monitoring and auditing must be accompanied by applicable records and evidence (e.g. delivery slips, photographic records, etc.). All reports must be retained and made available for inspection by the Applicant, the IEA, the ECO and /or the Relevant Competent Authorities. All reports shall be signed by the relevant parties to



ensure accountability. The Applicant must use the audit report findings to continually ensure that environmental protection measures are working effectively through a system of self-checking. The EMPr should be viewed as a dynamic document aimed at continual environmental performance improvement.

Table 5 stipulates the compliance monitoring and auditing obligations for the relevant development activity phases.

Table 5: Compliance Monitoring

Activity Phase	Audit Deliverable	Description	Responsible Party	Frequency
Construction Phase	Environmental Diary:	These reports must be prepared by the contractors' EO and must aim to monitor and report on day-to-day activities so as to ensure compliance with the relevant authorisations, licences and permits, the approved EMPr, and environmental method statements.	CEO	Daily
	Monthly Compliance Reports (CEO):	These reports must be prepared by the contractors' CEO and must aim to provide a concise monthly performance report, including copies of relevant documents (e.g. waste manifests, incident registers, consultation registers, etc).	CEO	Monthly
	Compliance Audit Reports:	The ECO must compile compliance reports (audits) which are to be submitted to the Applicant for review and correction of non-compliance issues. It is the responsibility of the ECO to report any non-compliance, which is not correctly rectified. Depending on the outcome of the authorisation processes it may be a requirement to submit these to the relevant authorities. These compliance audits will comply with the requirements of Appendix 7 of the EIA Regulations. ECO inspections are to be undertaken once per month and compliance be captured in a monthly ECO report.	ECO	Monthly
	Regulation 34 Environmental Audits:	Compiled by the appointed IEA. These compliance audits will comply with the requirements of Regulation 34 and Appendix 7 of the EIA Regulations and must be undertaken at the frequencies specified in the EA, this EMPr, or every 5 years (where not otherwise specified).	IEA	Annually
Operations	Compliance Audit Reports:	Compiled by the appointed IEA. These compliance audits will comply with the requirements of Regulation 34 and Appendix 7 of the EIA Regulations and must be undertaken at the frequencies specified	IEA	Annually



Activity Phase	Audit Deliverable	Description	Responsible Party	Frequency
		in the EA, this EMPr, or every 5 years (where not otherwise specified).		

9.2 ENVIRONMENTAL MONITORING

The purpose of monitoring is not merely to collect data, but to provide information necessary to make informed decisions on managing and mitigating potential impacts. Monitoring therefore serves the following functions:

- Serve as early warning system to detect any potential negative impacts;
- To provide information to feedback into management controls to avoid, prevent or minimise potential negative impacts;
- Provide quantitative data that can serve as evidence for the presence of negative impacts or the lack thereof;
- Allows for trending, modelling and prediction of future conditions or potential impacts;

Table 6 provides a breakdown of the environmental monitoring requirements for this project.

Table 6: Environmental Monitoring Plan.

Phase	Activity	Functional Requirements	Performance Indicator/ Target	Roles and Responsibilities	Frequency	Reporting Mechanism
Life of facility	Vegetation	Alien and invasive plant monitoring must be undertaken in conjunction with a site-specific AIP Monitoring Plan.	Minimise the proliferation of alien and invasive vegetation.	Site manager SHE Manager	Annually	Annual Performance audits AIP Plan updated

10 IMPACT MANAGEMENT OUTCOMES AND ACTIONS

This section captures impact management outcomes and actions that are applicable to specific project activities. For each identified aspect or activity, a set of prescribed impact management outcomes and associated actions have been identified. It is important to distinguish in this EMPr between the Impact Management Outcomes and the Impact Management Actions.

- Impact Management Outcomes: These are the desired end states or results that must be achieved to manage, mitigate, or enhance environmental impacts identified. They describe what success looks like in terms of environmental performance (e.g., “No contamination of surface water resources during construction”). These outcomes are measurable and auditable, forming the basis for compliance monitoring and reporting.
- Impact Management Actions: These are the specific measures, tasks, or interventions that must be implemented to achieve the stated impact management outcomes. They detail how the outcomes will



be achieved, including operational controls, procedures, and responsibilities (e.g., “Install silt fences and sediment traps along drainage lines before earthworks commence”).

Error! Reference source not found. presents the impact management outcomes and actions applicable to this project, and to which the project must comply.



Table 7: Environmental management outcomes and impacts

Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.1 AIR QUALITY MANAGEMENT		Impact management outcomes: • Maintain ambient air quality at sensitive receptors. • Minimise visible dust plumes crossing the site boundary. • Minimize fugitive dust from earthworks, unpaved roads, material handling, and stockpiles. • Control exhaust emissions from construction equipment and vehicles (mobile sources). • Prevent nuisance dust, odour and smoke. • Control open burning. • Identify and manage hazardous air pollutants. • Control and minimise the release of Greenhouse Gas Emissions. • Implement monitoring and responsive communication to address air-quality complaints promptly.						
GA1	• Phase earthworks to minimize exposed areas (from a temporal and spatial perspective);	C, D	Earthworks; vegetation clearing; grading; excavation; site rehabilitation	C; CEO	During planning and implementation of earthworks and rehabilitation activities	ECO	Daily during active earthworks; weekly ECO inspections	Limited exposed areas; no excessive dust; phased works evident in site inspections
GA2	• Exposed areas or material susceptible to excessive entrainment must be stabilized with water, mulch, soil binders, or other control method.	C, D	Earthworks; vegetation clearing; grading; excavation; site rehabilitation	C; CEO	During planning and implementation of earthworks and rehabilitation activities	ECO	Daily during active earthworks; weekly ECO inspections	Limited exposed areas; no excessive dust; phased works evident in site inspections
GA3	• Removal of vegetation must be avoided until such time as soil stripping is required and similarly	C, D	Vegetation clearing; soil stripping; rehabilitation	C; CEO	Prior to and during soil stripping; immediately once areas become available for rehabilitation	ECO	Daily during clearing; weekly ECO inspections	Vegetation removed only immediately before works; exposed areas stabilised or revegetated

³Project development phases abbreviated as: Planning and Design (PD); Pre-construction (PC); Construction (C); Operation (O); Decommissioning, Rehabilitation and Closure (D); Post Closure (CL).

⁴Responsible parties abbreviated as: Proponent (P), Developers Project Manager (DPM), Environmental Control Officer (ECO), Contractor (C), Contractor Environmental Officer (CEO), Independent Auditor (IA).



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	exposed surfaces outside of the development footprint must be re-vegetated or stabilised as soon as is practically possible.							
GA4	Take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the ECO.	C, D	Earthworks; traffic on unpaved roads; material handling; stockpiling	C; CEO	Throughout dust-generating activities	ECO	Daily during dry/windy conditions; weekly ECO inspections	Dust suppression implemented; no excessive visible dust plumes; complaints addressed
GA5	Control dust entrainment on unpaved roads (e.g. watering, speed limits, and surface treatments) to prevent impact to identified receptors.	C, D	Vehicle movement on unpaved roads and access tracks	C; CEO	Throughout construction and decommissioning traffic movements	ECO	Daily during active traffic; weekly ECO inspections	Speed limits and watering/surface controls implemented; no excessive road dust
GA6	Manage stockpiles to prevent excessive dust: locate in sheltered areas, cover, seed, or orient away from receptors.	C, D	Stockpiling of soil, aggregate and dust-generating materials	C; CEO	Throughout stockpile establishment and use	ECO	Weekly; after high wind or rainfall events	Stockpiles appropriately located/protected; no excessive dust from stockpiles
GA7	Transport materials susceptible to entrainment in covered/tarped	C, D	Transport of soil, spoil, aggregate and other dusty materials	C; CEO	During transport of entrainable materials	ECO	Daily visual checks during active haulage; weekly ECO inspections	Loads covered/dampened where required; no material loss or dust nuisance



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	trucks; and dampen loads if necessary.							
GA8	Prevent track-out of materials (soil, sediments, etc) onto public roads (e.g. using stabilized exits, wheel wash stations, and street sweeping).	C, D	Access/egress from site; haulage onto public roads	C; CEO	Throughout construction and decommissioning traffic movements	ECO	Daily by site supervision; weekly ECO inspections	No track-out on public roads; road sweeping/wheel-cleaning implemented where required
GA9	Vehicle speeds must be kept slow and along unsurfaced roads or when traversing unconsolidated and non-vegetated areas, in order to minimise dust creation.	C, D	Vehicle movement on unsurfaced or unconsolidated areas	C; CEO	Throughout vehicle movements on site	ECO	Daily by CEO; weekly ECO inspections	Speed controls implemented; no unauthorised speeding; dust reduced
GA10	Conduct daily visual inspections during dry/windy periods; escalate and supplement controls if dust observed; deploy Particulate Material monitors if warranted or directed by the ECO. If necessary cease dust generating activities during windy conditions as instructed by ECO.	C, D	Dust-generating activities during dry or windy conditions	C; CEO	During dry/windy periods and whenever dust is visible	ECO	Daily during dry/windy periods; immediately when dust is observed	Inspection records; additional controls implemented; activities stopped when instructed by ECO



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GA11	Notify community or sensitive receptors before high-dust generating activities; provide contact/grievance channels and close-out complaints.	C, D	High-dust activities near sensitive receptors or public roads	DPM; C; CEO	Prior to planned high-dust activities where receptors may be affected	ECO	As required prior to high-dust activities; complaint-based follow-up	Notification records; grievance register; complaints closed out
GA12	Community or receptor complaints related to dust must be investigated and addressed as soon as possible. Should repeat complaints be logged, ten targeted dust (PM and/or fallout dust) monitoring must be initiated, and project controls adapted to comply with applicable dust control regulations, standards and thresholds.	C, D	Dust complaints and air-quality grievance management	DPM; C; CEO	Immediately after receipt of dust complaints and until closed out	ECO	After each complaint; targeted monitoring if repeat complaints occur	Complaint register; investigation records; monitoring results where required; corrective actions closed
GA13	Maintain combustion vehicles and equipment to reduce exhaust emissions; enforce an anti-idling policy.	C, O, D	Use of combustion vehicles, generators and mobile equipment	C; CEO; O&M	Throughout use of vehicles and equipment	ECO	Daily pre-use checks by operator; weekly ECO inspections during construction	Maintenance records; anti-idling implemented; no excessive exhaust smoke
GA14	Control fugitive emissions from on-site batching/cutting	C	Batching, cutting, grinding or other dust-generating works	C; CEO	During applicable construction activities	ECO	During each applicable activity; weekly ECO inspections	Wet methods/enclosures/control measures



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	using enclosures, baghouses, or wet methods or other method agreed by the ECO.							implemented; no excessive emissions
GA15	Survey for asbestos/lead before demolition; use licensed removal with wet methods.	D	Demolition or removal of structures/materials where asbestos/lead may be present	DPM; C; CEO	Prior to demolition or disturbance of suspect materials	ECO	Before demolition and during removal where applicable	Survey records; licensed removal certificates where required; no uncontrolled hazardous material disturbance
GA16	Prohibit open burning of wastes and manage wastes to prevent odour and smoke.	C, O, D	Waste handling; site camp; all project areas	C; CEO; O&M	Throughout project phases	ECO	Daily site checks; weekly ECO inspections during construction	No open burning; no smoke/odour nuisance; waste managed lawfully
GA17	To reduce GHG emissions, where feasible use renewable energy sources and energy-efficient machinery and equipment. Implement regular maintenance schedules to ensure optimal fuel efficiency.	C, O, D	Use of vehicles, machinery, generators and energy-consuming equipment	DPM; C; CEO; O&M	During procurement, mobilisation and operation of equipment	ECO	Monthly review during construction; annually during operation	Efficient equipment used where feasible; maintenance records; fuel efficiency considered
GA18	Fuel usage should be recorded for GHG emissions reporting.	C, O, D	Fuel use by vehicles, generators and equipment	C; CEO; O&M	Throughout fuel-consuming activities	ECO	Monthly during construction; annually during operation/decommissioning where applicable	Fuel-use records available; GHG reporting inputs retained



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.2 WASTE MANAGEMENT		Impact management outcomes: • Prevent pollution and health risks by ensuring proper segregation, handling, storage, and disposal of all waste streams. • Minimize waste generation through source reduction, reuse, and recycling of materials. • Ensure safe handling and disposal of hazardous waste (e.g., oils, solvents, asbestos) in compliance with regulations. • Maintain site cleanliness and prevent littering to reduce safety hazards and visual impacts. • Prevent contamination of soil and water from waste storage and handling areas. • Track and document waste streams for accountability and regulatory compliance. • Create workforce awareness in waste management and minimization practices through training and supervision.						
GW1	• Develop and implement a Waste Management Plan (WMP) covering waste hierarchy, segregation, storage, transport, and disposal routes. The WMP must incorporate all waste related management actions from this EMPr. The WMP must be reviewed and approved by the ECO.	PC, C, O, D	All waste-generating activities	DPM; C; CEO	Prior to construction; implemented throughout project phases	ECO	Monthly review; weekly inspections during construction	Approved WMP; waste register; disposal certificates; site inspection records
GW2	• Ensure designated waste handling and storage areas. These areas must have adequate stormwater systems to prevent ponding or transport of wastes.	C, O, D	Waste storage; site establishment; maintenance areas	C; CEO	Prior to waste storage; throughout use	ECO	Weekly; after rainfall events	Designated areas used; no ponding; no waste migration; stormwater controls functional
GW3	• No collection or storage of waste outside of	C, O, D	Waste handling; housekeeping; site camp	C; CEO	Throughout project phases	ECO	Daily housekeeping checks; weekly ECO audit	No waste outside receptacles; housekeeping records;



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	dedicated areas or receptacles.							corrective actions closed out
GW4	No littering.	C, O, D	All project areas; site camp; waste handling areas	C; CEO	Throughout project phases	ECO	Daily housekeeping checks; weekly ECO audit	No litter observed; bins available and used; housekeeping records; complaints closed out
	Waste storage and disposal bins/drums should be emptied on regular bases and must not overflow. The drums should be water and scavenger proof. Precautions shall be taken to prevent any refuse from spreading on and from the site.	C, O, D	All project areas; site camp; waste handling areas	C; CEO	Throughout project phases	ECO	Daily housekeeping checks; weekly ECO audit	No litter observed; bins available and used; housekeeping records; complaints closed out
GW5	Hazardous waste management: store in covered and bunded areas; labelled containers; keep MSDS where applicable; dispose via licensed haulers at licenced disposal facilities.	C, O, D	Hazardous waste storage; maintenance areas; chemical handling	C; CEO	Prior to storage; throughout handling and disposal	ECO	Weekly; during hazardous waste removal events	Hazardous waste stored in covered, bunded and labelled areas; MSDS available; disposal certificates from licensed facilities
GW6	Segregate waste streams at source (e.g., inert, recyclable, hazardous); provide labelled containers/skips.	C, O, D	Waste generation; site camp; material handling	C; CEO	Prior to waste generation; throughout project phases	ECO	Daily housekeeping checks; weekly ECO audit	Clearly labelled containers/skips; waste streams separated; no cross-contamination; inspection records



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GW7	Minimize waste generation: order materials accurately; reuse formwork where practical; return packaging; design for deconstruction.	C, O, D	Procurement; material delivery; construction planning; decommissioning planning	DPM; C; CEO	During procurement, construction and decommissioning planning	ECO	Monthly procurement and waste review; weekly ECO audit during construction	Reduced surplus materials; returned packaging records; reuse records; reduced waste volumes in waste register
GW8	Recycle and recover construction and demolition materials (concrete, metals, timber) via approved facilities; maintain receipts.	C, D	Demolition waste; construction waste; material handling	C; CEO	Throughout construction and decommissioning where recyclable materials are generated	ECO	Monthly review; weekly inspections during active waste generation	Recycling receipts; approved facility records; waste register reflects recovery/recycling volumes
GW9	Prohibit open burning of any waste.	C, O, D	Waste handling; site camp; all project areas	C; CEO	Throughout project phases	ECO	Daily site checks; weekly ECO audit	No evidence of burning; no ash piles or smoke; no burning-related complaints; corrective actions closed out
GW10	Prevent contamination: impermeable surfaces for leachable waste storage; cover skips; secondary containment for liquids.	C, O, D	Leachable waste storage; hazardous waste storage; liquid waste handling	C; CEO	Prior to storage; throughout handling and storage	ECO	Weekly; after rainfall events; during waste removal events	Impermeable surfaces and containment in place; skips covered where required; no leachate, spills or contaminated runoff
GW11	Track and report waste: maintain registers of waste quantities generated, stored, and disposed. Obtain and keep waste disposal	C, O, D	Waste storage; waste removal; disposal and recycling	C; CEO	Throughout project phases; update after each waste removal event	ECO	Monthly register review; after each disposal or recycling event	Complete waste register; disposal certificates/manifests available; quantities reconciled with removal records



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	certificates and manifests.							
GW12	• Train workforce and subcontractors on waste segregation, hazardous waste handling, and spill response.	C, O, D	Site induction; waste handling; hazardous waste handling; spill response	C; CEO	Prior to commencement; refresher training as required	ECO	At induction; toolbox talks monthly or after incidents	Training attendance registers; induction records; workers demonstrate correct segregation and spill-response practices
GW13	• Emergency response for waste incidents: spill kits available; procedures for cleanup and reporting.	C, O, D	Waste incidents; spills; hazardous waste handling; storage areas	C; CEO	Prior to handling hazardous materials; throughout project phases; immediately during incidents	ECO	Weekly spill-kit checks; immediately after any incident	Spill kits available and stocked; incident reports completed; contaminated material removed to approved facility; corrective actions closed out
GW14	• Prohibit on-site disposal unless specifically licenced and approved by the ECO.	C, O, D	Waste disposal; waste storage; all project areas	C; CEO	Throughout project phases; prior to any proposed on-site disposal	ECO	Weekly site checks; review before any disposal activity	No unauthorised on-site disposal; ECO approval/licence records where applicable; disposal certificates retained
GW15	• All wastes generated must be stored and disposed of according to relevant legal requirements.	C, O, D	Waste storage; transport; disposal and recycling	DPM; C; CEO	Throughout project phases	ECO	Monthly compliance review; after each disposal event	Waste handled lawfully; approved transporter/disposal records; disposal certificates; no regulatory non-compliances
GW16	• Install and maintain stormwater infrastructure (e.g., culverts, drains, sediment traps) associated with site roads to prevent erosion, flooding, and waterlogging.	C, O	Site roads; stormwater drainage; access routes	DPM; C; CEO	Prior to road use and maintained throughout construction and operation	ECO	Weekly; after rainfall events	Stormwater infrastructure installed and functional; no blocked drains; no road erosion, flooding or waterlogging



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
SW1	Damaged, defective or end-of-life PV panels, BESS components and electrical/electronic equipment must be managed as a discrete waste stream. These items must be separated from general waste, stored in a secure designated area, classified where required in terms of applicable waste legislation, and preferentially returned to the supplier/manufacturer or sent for recycling/recovery. Where recycling is not feasible, disposal may only occur at an appropriately licensed facility, with disposal certificates retained on site.	C, O, D	Handling of damaged PV panels, BESS components, electrical equipment and end-of-life project components.	P, DPM, C, CEO	Throughout construction, operation, maintenance and decommissioning as waste arises.	ECO / IA	Monthly during construction; as required during operation and decommissioning.	Dedicated storage area; waste register; classification records where required; recycling/disposal certificates.
SW2	The Waste Management Plan must include procedures for the handling, temporary storage, recycling, classification and disposal of damaged PV panels, batteries/BESS	PD, PC, C, O, D	Preparation and implementation of the WMP and management of project-specific waste streams.	P, DPM, C, CEO	WMP to be finalised prior to construction; implemented throughout project life cycle.	ECO / IA	Prior to construction, then during audits.	Approved WMP includes PV/BESS/e-waste procedures; audit records confirm implementation.



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	components, inverters, cabling and other electrical waste generated during construction, operation, maintenance and decommissioning.							
10.3 HEALTH AND SAFETY MANAGEMENT		Impact management outcomes: • Prevent uncontrolled fire hazard. • Prevention or minimisation of health and safety risks to employees and general public. • Minimise the risk of injury, harm or complaints.						
GHS1	• All contractors and sub-contractors must comply with their obligations under the relevant legislative frameworks (e.g. Occupational Health and Safety Act; Construction Regulations).	PC, C, O, D	Contractor appointment; site establishment; construction, operational maintenance and decommissioning activities	P; DPM; C; CEO; O&M	Prior to mobilisation and throughout applicable phases	DPM; ECO	Monthly compliance review; ongoing by CEO/site supervision	Contractor OHS file approved; legal appointments in place; no unresolved OHS non-compliances
GHS2	• An Occupational Health and Safety (OHS) Management Plan for construction will be developed. Specific measures must include but are not limited to: • Requirement for work / task H&S Risk	PC, C, D	Construction planning; site establishment; high-risk construction and decommissioning activities	DPM; C; CEO	OHS Management Plan prior to construction; implemented throughout works	DPM; ECO	Prior to mobilisation; monthly review; after incidents or task changes	Approved OHS Plan; risk assessments; legal appointments; induction and PPE records



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	Assessments to be developed and approved. • H&S Roles and responsibilities, including safety managers, safety officers, first aiders, etc. • Installation of barriers, warning tape or netting, signage, a watchperson, and adequate lighting; • use of appropriate PPE at all times; • provision of adequate drinking water and sanitation; • provision of reverse alarms, lights, and all other							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	applicable safety devices for plant and equipment; workforce H&S induction on the project site safety requirements prior to commencement of activities.							
GHS3	Create project construction OHS risk assessments using a suitable methodology to identify hazards, risks, and controls following the hierarchy of controls. Supplement these with detailed job or task-specific assessments, updating them whenever tasks change or after any accident, incident, or near miss.	PC, C, D	Baseline and task-specific OHS risk assessments for all work activities	C; CEO	Prior to each relevant activity and updated after incidents or task changes	DPM; ECO	Before high-risk works; monthly review; after incidents/near misses	Approved risk assessments; toolbox talks; corrective actions closed out
GHS4	Where relevant the site must comply with the	PC, C, O, D	Fire-risk activities including vegetation clearing, hot works,	DPM; C; CEO; O&M	Prior to and during fire-risk activities	DPM; ECO	Weekly during construction; monthly	Fire safety controls implemented; fire



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	requirements of the relevant fire safety legislation (including the Veld and Forest Fires Act).		fuel/chemical storage and maintenance				during operation where applicable	equipment available; no uncontrolled fires
GHS5	- The following measures will be taken to reduce the risk of fires: - No open or unattended fires are permitted on site. - Adequate fire breaks must be maintained. - Designated smoking areas must be located in areas where fire hazard is regarded as insignificant. - Every possible precaution shall therefore be taken when working with potential flammable equipment	PC, C, O, D	Fire prevention, hot works, smoking areas, fuel/chemical handling and emergency response	DPM; C; CEO; O&M	Before commencement of fire-risk activities and throughout project phases	DPM; ECO	Weekly during construction; monthly during operation; after fire-risk incidents	Fire extinguishers available/serviced; smoking controls; FPA/fire contacts; fire training records



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	or liquids near potential sources of combustion. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities. The contractor shall ensure that there is always basic firefighting equipment available on site and the relevant staff are designated and trained in their use. Fire events must be specifically addressed in the EPRP							



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	(see section 8.11). - The contractor or contractors (as determined by the DPM) shall appoint a member of his staff to be responsible for the installation and inspection of firefighting equipment; and the contractor is to ensure that he/she has the contact details of the nearest fire station in case of an emergency. - The local Fire Protection Agency (FPA) must receive prior notice of							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	construction activities.							
GHS6	All staff must receive training on the risks associated with communicable diseases, HIV and AIDS, Tuberculosis, or other relevant.	PC, C, O, D	Worker induction, health awareness and toolbox talks	C; CEO; O&M	At induction and periodically throughout project phases	ECO	At induction; quarterly toolbox talks or as required	Training attendance registers; awareness material available; no unmanaged communicable-disease complaints
GHS7	- A community health and safety risk assessment must be undertaken prior to commencement of construction and must include: - Identification of community receptors within proximity to the site. - Identification of potential community interactions or exposure pathways. - Assess and implement controls to avoid or minimise community risks.	PC, C, D	Community health and safety assessment and controls	DPM; C; CEO	Prior to construction and updated when construction activities or receptors change	ECO	Before construction; quarterly review; after incidents/complaints	Community H&S risk assessment completed; controls implemented; grievances closed out



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	Revise and update community health and safety risk assessment on a period basis as necessary based on changing construction activities, community developments, or as instructed by the ECO.							
GHS8	Unauthorised access to the construction areas and specifically high-risk areas (excavations, scaffolding, material stockpiles, hazardous material storage areas, etc) must be controlled.	C, D	Access control for construction areas, excavations, stockpiles and hazardous storage areas	C; CEO	Throughout construction and decommissioning	ECO	Daily by CEO; weekly by ECO	Access controls/barriers/signage in place; no unauthorised access incidents
GHS9	A grievance mechanism aimed at receiving and resolving environmental and social issues must be developed and implemented. This	PC, C, O, D	Environmental and social grievance management	DPM; C; CEO; O&M	Prior to construction and maintained throughout project phases	ECO; IA	Monthly register review; after each grievance	Grievance mechanism communicated; register maintained; grievances closed out



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	must as a minimum include: • Dedicated roles and responsibilities; • Must be accessible to community and workers (consider physical access, literacy, languages, etc); • Must have a clear issue tracking mechanism and target resolution timelines. • Tracking and logging of all receipts and responses. • Must be publicised to project affected communities and workers. The Grievance mechanism must be made available for							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	inspection by the ECO and IEA.							
GHS10	When undertaking construction related activities outside of the designated construction area, clear project identification and ID's must be available (in person and on vehicles).	C, D	Work outside designated construction areas and project-related vehicle movement	C; CEO	Whenever works occur outside demarcated work areas	ECO	Daily during applicable activities; weekly ECO inspections	Workers/vehicles identifiable; ID/project signage visible; no unauthorised activities
GHS11	No loitering by workers in areas outside of and adjacent to the designed construction areas.	C, D	Workforce movement and conduct adjacent to work areas	C; CEO	Throughout construction and decommissioning	ECO	Daily by CEO; weekly by ECO	Workers remain within authorised areas; no loitering incidents or complaints
GHS12	Workers will not be allowed to keep or use alcohol, recreational drugs, traditional or modern weapons, snares or otherwise dangerous objects onsite, or to enter the sites while under the influence of alcohol or drugs.	C, O, D	Workforce conduct, access control and security	C; CEO; O&M	Throughout project phases	DPM; ECO	Daily access control; weekly during construction; after incidents	Code of conduct implemented; no alcohol/drug/weapons/sn are incidents
GHS13	An Emergency Preparedness and Response Plan must be developed and implemented (refer to Section 8.11)	PC, C, O, D	Emergency preparedness and response planning	DPM; C; CEO; O&M	EPRP prior to construction; maintained throughout project phases	ECO; IA	Prior to mobilisation; annually or after incidents; drills as defined	Approved EPRP; emergency contacts; drill/training records; incident response records



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
SHS1	Prior to construction/installation of the BESS, the final BESS technology, layout and safety specifications must be confirmed and incorporated into the site-specific OHS Management Plan and Emergency Preparedness and Response Plan. The plans must address battery fire risk, thermal runaway or equivalent technology-specific risks, emergency isolation, firefighting requirements, spill/leak response, access control, signage, manufacturer safety requirements and emergency contact protocols.	PD, PC, C, O	Final BESS design, installation, operation and maintenance.	P, DPM, C, CEO	Prior to BESS installation and maintained during operation.	ECO / IA	Prior to construction and during audits; emergency drills as defined in the EPRP.	Final BESS specifications available; OHS Plan/EPRP updated; emergency equipment and signage installed; training records.
10.4 NOISE MANAGEMENT		Impact management outcomes: • Prevent exceedance of applicable noise limits at sensitive receptors. • Minimize community disturbance by scheduling noisy activities and using engineering controls. • Control noise at source through equipment selection, maintenance, and mufflers. • Implement monitoring and complaint response mechanisms to maintain compliance and community trust. • Protect workers from occupational noise exposure per OHS standards (handled under H&S section).						
GN1	• The Contractor must keep noise level within acceptable limits.	C, D	Construction and decommissioning activities using noise-	C; CEO	Throughout noise-generating activities	ECO	Weekly inspections; complaint-based monitoring	Noise controlled; no unresolved noise complaints



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			generating plant/equipment					
GN2	- Construction working hours to be restricted as defined in the EA. Where not defined in the EA to: 6 days per week (Monday to Saturday); 7.30am to 6.00pm	C, D	Construction/decommissioning working hours	DPM; C; CEO	Throughout construction and decommissioning	ECO	Daily by CEO; weekly by ECO	Activities undertaken within approved working hours unless authorised
GN3	Schedule high-noise tasks during daytime (07:00–18:00); avoid night works unless approved with mitigation.	C, D	High-noise activities such as breaking, trenching, cutting or heavy equipment operation	C; CEO	During scheduling and execution of high-noise tasks	ECO	Daily during high-noise tasks; complaint-based monitoring	High-noise tasks scheduled for daytime; night works approved where required
GN4	Monitor and respond to any complaints related to noise through the project grievance mechanism. Should repeat complaints be logged, then targeted noise monitoring must be initiated, and project controls adapted to comply with applicable noise control regulations,	C, O, D	Noise complaints and grievance management	DPM; C; CEO; O&M	After receipt of noise complaints and until close-out	ECO	After each complaint; targeted monitoring if repeat complaints occur	Complaint register; monitoring results where required; corrective measures implemented



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	standards and thresholds. This should be implemented in consultation with the ECO.							
GN5	Select low-noise equipment where feasible; fit silencers/mufflers on engines and compressors; maintain equipment to spec; where practical, sources of significant noise should be enclosed.	C, O, D	Operation of engines, compressors, plant and equipment	C; CEO; O&M	At procurement/mobilisation and throughout equipment use	ECO	Weekly during construction; monthly during operation if relevant	Equipment maintained; silencers/mufflers fitted; no excessive equipment noise
GN6	Where practical install temporary noise barriers or acoustic screens near sensitive receptors for high-noise activities (e.g., piling, breaking).	C, D	High-noise activities near sensitive receptors	C; CEO	Before and during high-noise activities where receptors may be affected	ECO	As required during applicable activities	Noise barriers/screens installed where practical; complaints avoided/closed out
GN7	Machines and mobile equipment used intermittently should be shut down between work periods or throttled down to a minimum and not left running unnecessarily.	C, D	Intermittently used machines and mobile equipment	C; CEO	Throughout construction and decommissioning	ECO	Daily by CEO; weekly ECO inspections	Equipment shut down or throttled when not in use; no unnecessary idling



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GN8	Regular and effective maintenance of equipment	C, O, D	Maintenance of noise-generating equipment	C; CEO; O&M	Throughout use of equipment	ECO	Monthly maintenance review; weekly visual checks during construction	Maintenance records; no defective noisy equipment in use
GN9	- Blasting management: - Any blasting activity must be conducted by a suitably licensed blasting contractor. - Minimise blasting operations to mid-day, where required or possible. - Advance notification of blasting activities must be provided to surrounding landowners, emergency services, and site personnel (recommended at least 24 hours prior to such	C	Blasting, if required	DPM; C; CEO; licensed blasting contractor	Prior to and during any blasting activities	ECO; DPM	Each blasting event	Licensed contractor appointed; notifications/signage issued; blasting records; no unauthorised blasting



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	activities taking place on site). Sign-boards displaying blasting times and operations should be posted at both the site camp boundary and along the main access road leading to the site.							
10.5 SOCIAL MANAGEMENT		Impact management outcomes: - Avoid, minimize, and manage adverse social impacts on local communities, including health, safety, and security risks. - Reduce the impact of change to sense of place. - Promote effective stakeholder engagement and maintain transparent communication throughout the project lifecycle. - Implement a functional grievance mechanism for workers and communities to address concerns promptly. - Support local socio-economic benefits through local hiring, skills transfer and procurement of good and services from local enterprises - Promote gender equality and women's empowerment by ensuring equitable access to employment, training, and participation in decision-making processes. - Protect and promote the rights and well-being of vulnerable groups (including the elderly, persons with disabilities, youth, and female-headed households) by ensuring fair access to project opportunities and avoiding disproportionate burdens. - Protect cultural heritage, sacred sites, and traditional practices through early identification and appropriate management measures. - Enhance community health and well-being through proactive measures addressing communicable diseases, substance abuse, and social pathologies.						
GS1	The contractor must establish and facilitate a Community Liaison Forum (CLF). This should include all directly affected	PC, C	Stakeholder engagement and community interface during construction	DPM; C; CEO	Prior to construction and during construction as advised by the ECO	ECO	As advised by ECO; at least monthly where active community issues arise	CLF records; attendance registers; minutes; project updates provided



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	project affected persons as a minimum. The CLF must meet on a regular basis (as advised by the ECO) to present on the following: Project progress, upcoming project activities, relevant monitoring results. The CEO will be responsible for adequate notification, facilitation, minutes and records of attendance.							
GS2	Prioritise local employment and procurement during all project phases. Ensure recruitment of local labour (particularly youth and women) for unskilled and semi-skilled positions. Include local businesses in the project's procurement strategy by setting preferential thresholds for local contractors (e.g. catering, security,	PC, C, O	Recruitment, procurement and contractor management	DPM; C; CEO; O&M	Prior to recruitment/procurement and throughout project phases	ECO	Monthly during construction; annually during operation	Local employment/procurement records; realistic targets communicated; no unresolved employment grievances



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	transport, fencing). Collaborate with local municipalities, NGOs, and community structures to verify eligible beneficiaries. The recruitment and procurement policy must set realistic targets and be communicated clearly to manage expectations.							
GS3	Where lighting is required (including security lighting) the use of low intensity and /or directed light fittings to be used.	PD, C, O, D	Security lighting, task lighting and operational lighting	DPM; C; CEO; O&M	During design, installation and operation of lighting	ECO	Design review; monthly visual inspections; night inspection if required	Low-intensity/directed lighting installed; no excessive light spill
GS4	Facilitate local skills transfer and training programmes where required, through partnerships with accredited training providers, TVET colleges, SETAs, and NGOs. Include technical, entrepreneurship, and supplier-readiness training to enhance local	C, O	Training, skills transfer and supplier-readiness initiatives	DPM; C; CEO; O&M	Throughout construction and where feasible during operation	ECO	Quarterly during construction; annually during operation	Training records; attendance registers; evidence of local skills transfer



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	employability and business participation.							
GS5	Mandatory GBV, Sexual Harassment & HIV/STI Awareness Training with Signed Code of Conduct -Before starting constructions Training covers: unacceptable behaviour, local GBV context, penalties for misconduct. Each worker signs a Code of Conduct stating zero tolerance for harassment, exploitation or relationships with minors.	PC, C	Worker induction and code of conduct implementation	C; CEO	Before workers commence work and refreshed as required	ECO	At induction; toolbox talks; after incidents	Signed code of conduct; GBV/harassment/HIV awareness records; incidents addressed
GS6	Worker health awareness and protection - Adhere to the worker health and safety measures indicated in the EMPr. In addition, the following must be considered: - To mitigate the risk of increased social pathologies, the	PC, C, O, D	Workforce health awareness and behavioural management	C; CEO; O&M	At induction and throughout workforce presence	ECO	At induction; quarterly toolbox talks; after incidents	Health awareness records; code of conduct enforced; complaints/incidents closed out



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	Project Developer should implement a Workforce Health and Behavioural Management Programme that includes condom distribution and regular health (HIV/AIDS, STIs) awareness campaigns; toolbox talks addressing the risks of promiscuous behaviour, substance abuse, and gender-based violence; and the development of an in-house infectious diseases' strategy. A workforce code of conduct should be enforced to guide employee behaviour on and off site, promoting responsible conduct and positive interaction with local communities.							
GS7	Strict Worker Accommodation & Camp Rules (<i>if construction camp is required</i>) – Build worker camp with	PC, C	Worker accommodation/camp management if accommodation camp is required	DPM; C; CEO	Prior to occupation and throughout camp use	ECO	Weekly where a camp is established; monthly audit	Camp rules posted; visitor register; access/curfew/security controls; no camp-related non-compliances



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	controlled entrance, visitor register, curfew (e.g. 22h00), no on-site alcohol drinking and sales, security patrols. Post rules in local language(s). Conduct random checks. Any breach logged and acted on.							
SV1	External lighting must be limited to that required for safety and security, must be downward-directed, shielded and of low intensity where feasible, and must avoid unnecessary light spill beyond the development footprint.	PD, C, O, D	Installation and operation of security and task lighting.	P, DPM, C, CEO	During detailed design, construction and operation.	ECO / IA	During design review and routine inspections.	Lighting design/specifications; visual inspection confirms shielded/directed lighting and limited light spill.
SV2	Above-ground infrastructure, where feasible and subject to engineering and safety requirements, must use visually recessive, non-reflective colours/finishes that are compatible with the existing Redstone CSP/renewable-energy landscape.	PD, C, O	Selection and installation of PV, BESS, substation and associated above-ground infrastructure.	P, DPM, C	During detailed design and procurement; verified during construction.	ECO / IA	During design review and construction inspections.	Approved design/procurement specifications; visual inspection confirms suitable finishes where feasible.



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
SV3	The Contractor must maintain records of local employment, local procurement and skills-transfer initiatives implemented during construction and make these available to the ECO on request.	C	Recruitment, procurement and training during construction.	DPM, C, CEO	Throughout construction.	ECO / IA	Monthly during construction or as requested by ECO.	Employment/procurement records; training and induction records; local benefit reporting.
10.6 BIODIVERSITY MANAGEMENT		Impact management outcomes: • Avoid and minimize impacts on natural habitats and species through site selection, design, and construction planning. • Minimise habitat fragmentation and maintain ecological connectivity during construction. • Protect legally protected areas, critical habitats, and species of conservation concern in compliance with applicable standards and law. • Control invasive alien species and prevent their introduction or spread. • Implement progressive rehabilitation and habitat restoration as soon as practicable.						
GB1	• Demarcate sensitive biodiversity areas as identified in Section 0 and the ESIA/EIA/BAR as no-go zones, or buffer zones. Provide clear barriers or signage to prevent accidental access.	PC, C, O, D	Demarcation of sensitive biodiversity areas, no-go areas and buffers	DPM; C; CEO	Prior to construction and maintained while activities occur nearby	ECO	Before works; weekly during construction; during audits	No-go/buffer areas demarcated; signage/barriers maintained; no unauthorised access
GB2	• Contractor must develop a construction layout plan which aims to designate areas of disturbance/ footprint (temporary and permanent), no-go areas, buffer areas etc. This	PC	Construction layout planning and site establishment	DPM; C; CEO	Prior to commencement of construction	ECO	Once before construction; updated as layout changes	Approved construction layout plan showing footprint, no-go areas, buffers and laydowns



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	construction layout plan must be prepared and approved by the ECO prior to commencement.							
GB3	Restrict vegetation damage or clearing to imminent construction footprints or areas as approved by the ECO.	C, D	Vegetation clearing, access creation and construction/decommissioning works	C; CEO	Throughout clearing and disturbance activities	ECO	Daily during clearing; weekly ECO inspections	Clearing restricted to approved areas; no unauthorised vegetation damage
GB4	Where practical phase construction works to: minimise the unnecessary premature disturbance of vegetation and optimise the early initiation of rehabilitation.	C, D	Construction phasing and rehabilitation planning	DPM; C; CEO	During construction planning and active works	ECO	Weekly during construction; monthly rehabilitation review	Clearing phased; rehabilitation initiated as areas become available
GB5	Undertake pre-construction surveys and fauna rescue/relocation.	PC, C	Pre-construction surveys and fauna rescue/relocation	DPM; C; ECO; suitably qualified specialist where required	Before vegetation clearing and during clearance where fauna encountered	ECO	Once before clearing; follow-up as required	Survey/rescue records; fauna incidents recorded; relocation undertaken where required
GB6	No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and	PC, C, O	Removal/relocation of TOPS/protected fauna or protected flora	P; DPM; C; ECO	Before any removal/relocation of protected species	ECO; IA	Permit check before works; audit review	Required permits/authorisations available; no unauthorised removal/relocation



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	relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits.							
GB7	Prior to the installation of final construction fencing, the Contractor shall undertake a systematic herding or shepherding exercise to guide any mobile fauna larger than would be able to traverse the fencing, out of the designated construction footprint. This activity must be conducted under the supervision of the ECO or CEO or a suitably qualified ecologist to efficacy and ensure humane handling of fauna. All efforts shall aim to minimize stress and prevent injury to fauna.	PC, C	Fencing installation and fauna herding/shepherding	C; CEO; ECO or qualified ecologist	Before final construction fencing is closed	ECO	During fencing installation and prior to closure of fenced areas	Herding/shepherding record; no trapped large fauna; humane handling confirmed



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GB8	Install exclusion fencing or barriers to prevent faunal access to hazard areas. Where necessary make provision for escape ramps in deep excavations or trenches.	C, D	Excavations, trenches, hazardous areas and fencing/barriers	C; CEO	Throughout open excavations/trenches and hazardous works	ECO	Daily by CEO; weekly by ECO	Exclusion barriers/escape ramps in place; no fauna trapped/mortality incidents
GB9	No hunting or poaching permitted. No deliberate or intentional killing of fauna is allowed.	C, O, D	Worker conduct and fauna protection	C; CEO; O&M	Throughout project phases	ECO	Daily by supervision; weekly ECO inspections during construction	No hunting/poaching/fauna killing; incidents investigated and closed out
GB10	Collection of fuel wood and gathering of plants by the construction workforce is prohibited.	C, D	Worker conduct and vegetation protection	C; CEO	Throughout construction and decommissioning	ECO	Daily by supervision; weekly ECO inspections	No fuelwood collection or plant gathering; awareness records; non-compliances closed out
GB11	Prevent introduction of invasive species by cleaning equipment prior to first use on site.	PC, C	Mobilisation of vehicles, plant and equipment to site	C; CEO	Prior to first use of equipment on site	ECO	At mobilisation; spot checks during construction	Equipment clean on arrival; no introduction of invasive propagules
GB12	Develop and implement an alien invasive management plan. The plan must address local AIS risks, and must as a minimum seek to control	PC, C, O, D	Alien invasive plant management in disturbed areas, access routes and buffers	P; DPM; C; CEO; O&M	Plan before construction; implemented throughout project life	ECO; IA	Monthly during construction; annually/quarterly during operation as required	Approved alien invasive management plan; control records; reduced/contained alien plants



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	establishment and spreading.							
GB13	Implement active restoration and rehabilitation on disturbed areas as soon as practically possible. Should adequate revegetation (aligned with surrounding control sites) not occur passively then this must be supplemented by active soil amelioration and seeding with suitable seed mixes. Active revegetation methods and species mix to be approved by the ECO.	C, O, D	Rehabilitation and restoration of disturbed areas	C; CEO; O&M	As soon as practicable after disturbance and during closure	ECO	Monthly until stable; after rainfall events where required	Disturbed areas stabilised/revegetated; indigenous seed mix approved where used
GB14	In instances where long term linear barriers are installed suitable ecological connectivity measures must be implemented (e.g. wildlife crossings, culverts, or escape ramps).	PD, C, O	Design and maintenance of long-term linear barriers/fencing	DPM; C; O&M	During design, installation and operation	ECO	Design review; post-installation inspection; annual checks	Connectivity measures/escape opportunities maintained where feasible



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GB15	Existing and designated vehicular access and haulage routes must be used- no traversing natural areas outside of the designated construction footprint.	C, O, D	Vehicle access, haulage and maintenance routes	C; CEO; O&M	Throughout project phases	ECO	Daily by supervision; weekly ECO inspections during construction	Vehicles remain on designated routes; no uncontrolled tracks in natural areas
GB16	Where pest control is required, environmentally friendly options must receive preference. Pest control must be implemented in accordance with relevant legislation.	C, O, D	Pest control where required	C; CEO; O&M	When pest control is required	ECO	As required; during audits	Environmentally appropriate pest control used; records of method/product retained
SB1	A pre-construction walkdown/search-and-rescue survey must be undertaken by a suitably qualified biodiversity specialist or suitably competent person prior to vegetation clearance. The survey must identify protected plant species, plant SCC and fauna requiring rescue/relocation within the approved footprint. No	PC, C	Pre-construction surveys and vegetation clearance.	P, DPM, C, ECO	Prior to vegetation clearance and during initial clearance where required.	ECO / IA	Once prior to clearance; follow-up as required by specialist/ECO.	Walkdown/search-and-rescue report; permit records; rescue/relocation records; ECO sign-off prior to clearance.



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	protected plant species may be removed, relocated or destroyed unless the required permits/authorisations have been obtained.							
SB2	Vegetation clearance must be limited to the approved development footprint and may not exceed the authorised footprint without the required approvals. The final construction layout must be approved by the ECO prior to clearance and must show all no-go areas, buffers, access routes, laydown areas and temporary disturbance areas.	PD, PC, C	Site establishment, vegetation clearance and construction activities.	P, DPM, C, CEO	Prior to and during construction.	ECO / IA	Prior to clearance and during routine inspections.	Approved construction layout; demarcated footprint/no-go areas; inspection records show no unauthorised clearance.
SB3	The final layout must retain the preferred avoidance approach assessed in the BAR, namely use of the already disturbed Redstone CSP footprint for electrical connection infrastructure and avoidance of unnecessary greenfield	PD, PC, C	Final route/layout design and installation of electrical connection infrastructure.	P, DPM, C	During detailed design and prior to construction.	ECO / IA	Design review prior to construction; construction inspections.	Final layout aligns with approved BAR approach; no unauthorised greenfield disturbance.



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	disturbance, unless an alternative is approved through the required environmental process.							
SB4	Where fencing is installed around the PV/BESS infrastructure, the ECO must confirm that the design does not unnecessarily trap fauna. Where feasible, fencing must allow safe movement of small fauna or include escape opportunities, while still meeting site security requirements.	PD, C, O	Design, installation and maintenance of fencing.	P, DPM, C, CEO	During fence design and installation; maintained during operation.	ECO / IA	Design review and post-installation inspection; routine inspections during operation.	Fence design reviewed; inspection records; fauna incidents recorded and corrective actions implemented.



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
10.7 WATER MANAGEMENT		Impact management outcomes: • Prevent contamination of surface water and groundwater from amongst other sediment, fuels, chemicals, and wastewater. • Maintain natural drainage patterns and minimize alteration of hydrology. • Control stormwater runoff to prevent erosion, flooding, and off-site sedimentation. • Minimise the change in stormwater runoff from pre-development to post-development conditions. • Ensure proper storage and handling of hazardous substances to avoid leaks and spills. • Manage wastewater and concrete washout to prevent uncontrolled discharge. • Monitor water quality and implement corrective actions where exceedances or pollution risks occur. • Promote water conservation and efficient use during construction activities. • Avoid encroachment into watercourses and wetlands through buffer zones and site planning. • Implement dewatering controls to prevent erosion and turbidity in receiving waters. • Ensure sanitary wastewater from camps and ablutions is treated before discharge. • Prevent illegal discharge of any liquid waste into stormwater systems. • Use environmentally safe soil binders and dust suppressants to avoid water pollution. • Protect groundwater recharge zones from compaction and contamination. • Ensure emergency response procedures are in place for water pollution incidents. • Engage with local authorities and communities regarding water use and protection.						
GWA1	• A qualified engineer must develop a construction and operational phase Stormwater Management Plan (SWMP) prior to commencement. This plan must be approved by the ECO and must be implemented throughout the development phases. The key aspects to be included in the plan: • Design, modify, locate, build,	PD, PC, C, O, D	Stormwater design, construction, operation and decommissioning	P; DPM; C; CEO; qualified engineer	SWMP prior to construction; implemented throughout project phases	ECO; IA	Design review before construction; weekly during construction; after rainfall events	Approved SWMP; clean/dirty water separation; no uncontrolled dirty-water discharge



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	and maintain water systems to prevent water pollution and minimize habitat damage from erosion, sedimentation, vegetation disturbance, or changes in flow. • Clear distinction between clean water and dirty water drainage areas. • Develop drainage and containment and/or treatment of all dirty water, these may include attenuation dams and silt traps.							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	• Appropriate pollution control facilities necessary to prevent discharge of water containing polluting matter or visible suspended materials into watercourses or water bodies must be designed and implemented. • Divert clean water away from disturbed areas. • Stormwater discharge points to be designed to avoid scouring or erosion. • Contaminated stormwater,							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	wastewater and sewage to be managed on site through either: on-site treatment to acceptable effluent standards for release to environment ; or alternatively trucked off-site and disposed of at approved wastewater treatment works in the area.							
GWA2	No contaminated water to be discharged into the environment without relevant authorisation.	C, O, D	Management of contaminated water, wastewater, wash water and dirty stormwater	C; CEO; O&M	Whenever contaminated water may be present	ECO	Weekly; after rainfall or discharge events	No unauthorised discharge; water managed lawfully; incident records
GWA3	Where water is purposefully and lawfully discharged into the environment, undertake water quality monitoring	C, O, D	Authorised discharge of water, where applicable	DPM; C; CEO; O&M	During any authorised discharge	ECO; IA	Each discharge event; upstream/downstream monitoring where practical	Water-quality/discharge records; exceedances corrected; authorisation conditions met



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	of the discharge, as well as upstream/downstream of discharge points (where practical). Water quality and discharge records to be taken and kept. Trigger corrective actions if exceedances of discharge quality thresholds occur.							
GWA4	Install erosion and sediment controls (silt fences, sediment basins, check dams, etc) to prevent sediment-laden runoff entering watercourses.	C, O, D	Earthworks, exposed soils and runoff pathways near watercourses/wetlands	C; CEO	Before and during activities that may generate sediment-laden runoff	ECO	Weekly; after rainfall events	Silt fences/sediment controls installed and maintained; no sediment entering wetland
GWA5	All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, wetlands and water bodies.	C, D	Excavation, piling if required, trenching and spoil storage	C; CEO	During excavation and spoil storage	ECO	Weekly; after rainfall events	Excavated material stored outside buffers; stockpiles stable; no runoff to wetland



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GWA6	Maintain identified buffer zones around watercourses and wetlands and prohibit stockpiling or refuelling within buffer areas.	PC, C, O, D	Works adjacent to wetland/watercourse buffers	DPM; C; CEO; O&M	Before and during activities near buffers	ECO	Before works; weekly during construction; during audits	Buffers demarcated; no stockpiling/refuelling in buffer; no encroachment
GWA7	Store hazardous materials and chemicals (including fuels) on impermeable surfaces with secondary containment/bunding. Bunding to provide for at least 110% volume of the largest container/tank, or 25% of the total volumes of fuel and fluids stored (whichever is greater).	C, O, D	Storage of fuels, oils, chemicals and hazardous substances	C; CEO; O&M	Before storage and throughout use	ECO	Weekly; after incidents	Bunds/impermeable surfaces present; volumes compliant; no leaks/spills
GWA8	Establish an inspection programme for all mobile fuel tanks, generators, and other polluting equipment lacking hardstanding. Inspections should ensure the integrity and functionality of tanks, pipes, containment	C, O, D	Mobile fuel tanks, generators and polluting equipment	C; CEO; O&M	Throughout use of mobile tanks/generators/equipment	ECO	Daily by operator; weekly by CEO/ECO during construction	Inspection records; no leaking equipment; defective equipment removed/repaired



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	systems, emergency shutdown measures, and related equipment. Leaking equipment must be repaired immediately or be removed from site to facilitate repair.							
GWA9	The use of drip trays and mobile containment must be implemented to avoid spills of hazardous materials (e.g. fuels and oils) to the environment.	C, O, D	Use of hazardous substances, plant, generators and refuelling equipment	C; CEO; O&M	Throughout use of equipment/substances	ECO	Daily by operator; weekly ECO inspections	Drip trays/mobile containment used; no uncontained spills
GWA10	Refuelling and servicing of vehicles must take place on impervious surfaces or with the use of drip trays.	C, O, D	Refuelling and servicing of vehicles/equipment	C; CEO; O&M	During each refuelling/servicing event	ECO	Daily by CEO; weekly ECO inspections	Refuelling on impervious surface/drip trays; no soil/water contamination
GWA11	All spillage of oil must be avoided by the use of drip trays or similar containment. Where spills occur these must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an	C, O, D	Oil handling and spill response	C; CEO; O&M	Throughout project phases and immediately when spills occur	ECO	After each spill; weekly spill-kit/containment checks	Spills contained/cleaned; absorbents disposed lawfully; spill register updated



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	appropriate waste disposal facility.							
GWA1 2	Where possible all vehicle or equipment servicing to take place at a designated area on an impermeable surface to prevent release of hazardous substances to the environment.	C, O, D	Vehicle/equipment servicing and maintenance	C; CEO; O&M	During servicing/maintenance activities	ECO	Weekly during construction; during operational audits	Servicing in designated areas; no contamination from maintenance
GWA1 3	A Spill Response Procedure must be developed and implemented (refer to Section 8.12)	PC, C, O, D	Spill preparedness and response	DPM; C; CEO; O&M	Procedure prior to construction and implemented throughout project phases	ECO; IA	Prior to mobilisation; after each spill; during audits	Spill Response Procedure available; staff trained; incidents closed out
GWA1 4	Ensure spill kits are provided and accessible in areas where hazardous substances are stored or used.	C, O, D	Hazardous substance storage/use areas and refuelling points	C; CEO; O&M	Before hazardous substances are stored or used and throughout use	ECO	Weekly; after use/incident	Spill kits available, stocked and accessible; staff know locations
GWA1 5	Prevent discharge of liquid wastes into the stormwater systems.	C, O, D	Liquid waste handling, maintenance and wash water management	C; CEO; O&M	Throughout project phases	ECO	Weekly; after rainfall/washdown events	No liquid waste in stormwater system; no contaminated runoff
GWA1 6	Conduct all concrete mixing and batching on impervious surfaces (e.g., concrete slab, or liners) to prevent infiltration into soil	C	Concrete mixing and batching, if required	C; CEO	During concrete mixing/batching activities	ECO	During each concrete activity; weekly inspections	Impervious/contained mixing areas; no cement contamination of soil/water



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	or mobilisation to water resources.							
GWA17	Prevent the release of cement contaminated water from discharging to the environment (soil, water resources).	C	Concrete works and cement-contaminated water management	C; CEO	During and after concrete works	ECO	During each concrete activity; after rainfall if exposed	No cement-contaminated water released to soil/water resources
GWA18	Prohibit discharge of wash water onto bare soil or stormwater drains.	C	Concrete washout, equipment washing and general wash water handling	C; CEO	During washing/washout activities	ECO	During applicable works; weekly inspections	No wash water discharged to bare soil or drains; washout areas used
GWA19	Collect wash water from mixers and trucks in lined settling ponds or tanks for reuse or disposal. Reuse to be approved by the ECO.	C	Mixer/truck wash water collection and management	C; CEO	During concrete works where mixers/trucks are washed	ECO	During each washout activity; weekly review	Lined settling ponds/tanks used; reuse/disposal approved; no overflow
GWA20	Conduct regular inspections for leaks, spills, and integrity of containment systems.	C, O, D	Containment systems, tanks, drums, generators and hazardous storage areas	C; CEO; O&M	Throughout project phases	ECO	Weekly during construction; monthly during operation; after incidents	Leak/containment inspection records; defects corrected promptly
GWA21	Recycle or reuse water where practical and in line with relevant legal requirements. Use recycled water for dust suppression where feasible and monitor consumption.	C, O	Water use for dust suppression, cleaning and maintenance	C; CEO; O&M	Throughout water use	ECO	Monthly water-use review during construction; annual during operation	Water-use records; recycled/reused water used where feasible; no wasteful use



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GWA2 2	Control dewatering discharge: use energy dissipation, sediment traps, and vegetated buffers to reduce scouring, erosion and turbidity.	C, D	Dewatering, if required	C; CEO	During dewatering activities	ECO	Each dewatering event; daily while dewatering occurs	Energy dissipation/sediment controls in place; no scour/turbidity impacts
GWA2 3	Use environmentally safe soil binders and dust suppressants; avoid products that pollute water.	C, D	Dust suppression and soil stabilisation using binders/suppressants	C; CEO	Before and during application of suppressants/binders	ECO	Each application; weekly inspections	Only environmentally safe products used; product records available; no water pollution
GWA2 4	Abstraction of water from local water resources (surface or groundwater) is prohibited without relevant licences or authorisations.	PC, C, O	Water abstraction for construction and operational use	P; DPM; C; O&M	Before abstraction and throughout water use	ECO; IA	Prior to abstraction; monthly during construction; annual during operation	Authorisations available; no unauthorised abstraction; water-use records retained
GWA2 5	- Implement water conservation practices including: - Minimising water use during equipment cleaning; - Conducting regular audits of water systems; - Discussing water usage	C, O	Water use for equipment cleaning, dust suppression and panel cleaning	C; CEO; O&M	Throughout water use	ECO	Monthly during construction; annually during operation	Water conservation measures implemented; audits/records; awareness training



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	and conservation in environmental awareness training; and Encouraging the use of grey water.							
GWA2 6	- Provide training on water management to all workers, including but not limited to: - Methods for transfer and handling of fuels and chemicals. - Spill response and use of spill kits. - Water conservation measures. - Sensitive water resources and associated buffers.	PC, C, O, D	Worker induction and toolbox talks on water management	C; CEO; O&M	Before work starts and refreshed as required	ECO	At induction; toolbox talks monthly or as required	Training records; workers aware of buffers, spill response and water conservation
SWA1	The delineated unchannelled valley-bottom wetland and the specialist-recommended post-	PC, C, O, D	Site establishment, construction, operation, maintenance and decommissioning near the wetland/buffer.	P, DPM, C, CEO	Prior to construction and maintained while activities occur near the buffer.	ECO / IA	Prior to construction; weekly during active construction near buffer; during audits.	Wetland/buffer demarcated; no-go signage/barriers; inspection records; no



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	mitigation buffer of 30 m must be demarcated as no-go/buffer areas prior to construction. No stockpiling, refuelling, vehicle parking, laydown areas, ablutions, waste storage or unnecessary access may occur within this buffer unless specifically authorised.							unauthorised activities within buffer.
SWA2	No construction activities that trigger water uses under Section 21(c) and/or 21(i) of the National Water Act may commence within the regulated area of the wetland until the required General Authorisation, Water Use Licence or other applicable DWS confirmation/authorisation has been obtained and the relevant conditions incorporated into the method statements and SWMP.	PD, PC, C	Activities within the regulated area of the wetland.	P, DPM, C	Prior to commencement of regulated activities.	ECO / IA	Prior to construction and during audits.	DWS authorisation/confirmation available; conditions incorporated into method statements/SWMP; ECO sign-off.
SWA3	Prior to construction, the Proponent must confirm the source,	PD, PC, C, O	Water supply and use for dust suppression, construction activities,	P, DPM, C	Confirmation prior to construction; records	ECO / IA	Prior to construction; monthly during construction; as	Water source/volume confirmation;



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	expected volumes and legal authorisation basis for construction and operational water use, including whether existing Redstone CSP water-use authorisations are sufficient for the PV/BESS activities. Water-use records must be maintained during construction and operation.		panel cleaning and operational requirements.		maintained throughout use.		required during operation.	authorisation records; water-use register.
10.8 SOIL MANAGEMENT		Impact management outcomes: • Prevent soil erosion and sediment loss. • Minimise soil contamination. • Preserve soil resources for reuse. • Prevent soil from unnecessary degradation, compaction and disturbance. • Ensure proper stripping, stockpiling, and reuse of topsoil. • Rehabilitate and restore disturbed soils. • Comply with all relevant soil protection legislation and permit conditions. • Prevent the introduction and spread of invasive species.						
GS1	• Design and implement a SWMP for all direct project affected areas- refer to requirements in Stormwater Management section.	PC, C	Stakeholder engagement and community interface during construction	DPM; C; CEO	Prior to construction and during construction as advised by the ECO	ECO	As advised by ECO; at least monthly where active community issues arise	CLF records; attendance registers; minutes; project updates provided
GS2	• Implement erosion and sediment control measures (e.g., silt fences, sediment traps) to minimise erosion	PC, C, O	Recruitment, procurement and contractor management	DPM; C; CEO; O&M	Prior to recruitment/procurement and throughout project phases	ECO	Monthly during construction; annually during operation	Local employment/procurement records; realistic targets communicated; no unresolved employment grievances



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	for project affected areas.							
GS3	Regularly inspect and maintain soil and erosion control measures.	PD, C, O, D	Security lighting, task lighting and operational lighting	DPM; C; CEO; O&M	During design, installation and operation of lighting	ECO	Design review; monthly visual inspections; night inspection if required	Low-intensity/directed lighting installed; no excessive light spill
GS4	Avoid the unnecessary loss of topsoil resources by stripping, stockpiling and reusing topsoil wherever practically possible.	C, O	Training, skills transfer and supplier-readiness initiatives	DPM; C; CEO; O&M	Throughout construction and where feasible during operation	ECO	Quarterly during construction; annually during operation	Training records; attendance registers; evidence of local skills transfer
GS5	Topsoil stripping: strip to full depth of topsoil, avoid mixing sub-soil and topsoil.	PC, C	Worker induction and code of conduct implementation	C; CEO	Before workers commence work and refreshed as required	ECO	At induction; toolbox talks; after incidents	Signed code of conduct; GBV/harassment/HIV awareness records; incidents addressed
GS6	Topsoil stockpiles: stockpile topsoil and subsoils separately; place topsoil stockpiles in disturbed areas where practicable; topsoil stockpiles may not exceed 2m in height; avoid contamination or unnecessary disturbance to topsoil stockpiles; prevent the establishment of alien invasive growth on	PC, C, O, D	Workforce health awareness and behavioural management	C; CEO; O&M	At induction and throughout workforce presence	ECO	At induction; quarterly toolbox talks; after incidents	Health awareness records; code of conduct enforced; complaints/incidents closed out



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	stockpiles; protect topsoil stockpiles from erosion.							
GS7	Avoid the stripping and replacement of wet topsoil.	PC, C	Worker accommodation/camp management if accommodation camp is required	DPM; C; CEO	Prior to occupation and throughout camp use	ECO	Weekly where a camp is established; monthly audit	Camp rules posted; visitor register; access/curfew/security controls; no camp-related non-compliances
GS8	Remove and dispose or remediate contaminated soils according to the requirements of the National Environmental Management: Waste Act and associated regulations.	C, O, D	All relevant project activities	C; CEO; O&M	Throughout applicable project phases	ECO	Weekly during construction; during audits	Inspection records; corrective actions closed out
GS9	Conduct training or toolbox talks on soil protection measures and spill response requirements.	C, O, D	All relevant project activities	C; CEO; O&M	Throughout applicable project phases	ECO	Weekly during construction; during audits	Inspection records; corrective actions closed out
GS10	Restrict vehicle and machinery movement to designated routes to prevent compaction.	C, O, D	All relevant project activities	C; CEO; O&M	Throughout applicable project phases	ECO	Weekly during construction; during audits	Inspection records; corrective actions closed out
GS11	Develop and implement an alien invasive management plan.	C, O, D	All relevant project activities	C; CEO; O&M	Throughout applicable project phases	ECO	Weekly during construction; during audits	Inspection records; corrective actions closed out



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GS12	Rehabilitate disturbed areas as soon as practical. Revegetate either passively or with active soil supplementation and seeding as advised by the ECO.	C, O, D	All relevant project activities	C; CEO; O&M	Throughout applicable project phases	ECO	Weekly during construction; during audits	Inspection records; corrective actions closed out
10.9 TRAFFIC AND TRANSPORT MANAGEMENT		Impact management outcomes: - Prevent traffic-related injuries and fatalities for workers and the public. - Maintain safe separation of vehicles, pedestrians, and plant. - Minimize traffic congestion and delays on public roads. - Ensure visibility and compliance with speed limits road traffic legislation. - Provide clear signage, barriers, and lighting to guide road users and site personnel safely. - Prevent use of unauthorized routes. - Implement emergency response and incident management protocols for traffic-related events. - Minimise off-site dust track-out and deposition on public roads						
GT1	Develop and implement a Traffic Management Plan (TMP) covering roles and responsibilities, site access, haul routes, no-go or environmental and social sensitive areas, signage, speed limits, and emergency procedures. The TMP must be submitted to the ECO for review and comment. The TMP must be submitted	PC, C, D	Traffic planning, site access, haulage and emergency arrangements	DPM; C; CEO	TMP prior to construction; implemented throughout construction/decommissioning	ECO; DPM	Prior to construction; monthly review; after traffic incidents	Approved TMP; authority comments/approval where required; traffic controls implemented



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	to the relevant roads' authorities for comment and approval.							
GT2	Decisions regarding the siting/location of new roads should be aligned to the approved layouts, must avoid identified environmental and social sensitivities, and done with agreement of the landowner. Where practical follow existing routes or align with existing disturbed areas.	PD, PC, C, D	Siting and use of site roads/access routes	DPM; C; CEO	During design and before construction of any new routes	ECO	Design review; weekly inspections during road works	Routes align with approved layout; sensitive areas avoided; landowner agreement where required
GT3	Segregate pedestrian and vehicle routes; provide crossing points with adequate visibility and signage.	C, D	Pedestrian and vehicle movements within work areas	C; CEO	Throughout construction and decommissioning	ECO	Daily by CEO; weekly ECO inspections	Pedestrian/vehicle routes separated; signage/crossings in place
GT4	Install advance warning signs, speed control devices (e.g., bumps), and lighting at site entrances and along haul roads. Signage to comply with the requirements of the	PC, C, D	Site entrances, haul roads and high-risk traffic areas	C; CEO	Prior to route use and maintained throughout works	ECO	Weekly; after incidents/complaints	Warning signs/speed controls/lighting installed and maintained; SARTSM-compliant signage where applicable



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	South African Road Traffic Signs Manual (SARTSM.)							
GT5	Schedule heavy loads, deliveries and spoil removal on public roads to avoid peak traffic hours; use designated routes as defined in the TRP and where applicable approved by relevant authorities.	C, D	Heavy loads, deliveries and spoil/material transport	C; CEO	During haulage and deliveries	ECO	Weekly; during abnormal/heavy deliveries	Designated routes used; peak-hour avoidance where required; no unauthorised haulage
GT6	Provide trained flaggers/traffic controllers at high-risk crossings and during abnormal loads.	C, D	High-risk crossings, abnormal loads and traffic control points	C; CEO	During high-risk crossings/abnormal loads	ECO	Each relevant event	Trained flaggers/controllers present; traffic incidents avoided
GT7	Maintain vehicle safety checks (brakes, lights, reverse alarms) and driver competency verification.	C, O, D	Use of project vehicles, plant and mobile equipment	C; CEO; O&M	Throughout project phases	ECO; DPM	Daily pre-use checks; monthly review	Vehicle checks completed; drivers competent; no unsafe vehicles in use
GT8	Establish incident reporting and emergency response protocol for traffic accidents; conduct drills.	PC, C, O, D	Traffic incident and emergency response	DPM; C; CEO; O&M	Protocol prior to construction; implemented throughout project phases	ECO	After traffic incidents; drills as required	Traffic incident protocol available; incidents reported; corrective actions closed
GT9	Traffic to remain on designated access and routes	C, O, D	Vehicle access and haulage	C; CEO; O&M	Throughout project phases	ECO	Daily by CEO/site supervision; weekly ECO inspections during construction	Traffic remains on designated routes; no unauthorised tracks



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GT10	The relevant responsible party shall maintain and repair any damage caused to public roads due to construction activities, including haulage and heavy vehicle movement, in coordination with relevant authorities, and under direction from the DPM.	C, D	Use of public roads by construction/decommissioning traffic	DPM; C; CEO	Throughout construction/decommissioning and until damage is repaired	ECO; DPM	Monthly; after damage/complaints	Road condition records; damage repaired in consultation with authorities
GT11	Install and maintain stormwater infrastructure (e.g., culverts, drains, sediment traps) associated with site roads to prevent erosion, flooding, and waterlogging.	C, O, D	Road drainage and stormwater infrastructure associated with site roads	DPM; C; CEO; O&M	Before road use and maintained throughout project phases	ECO	Weekly during construction; after rainfall; monthly during operation	Culverts/drains/sediment traps functional; no erosion/flooding/waterlogging
10.10	CULTURAL HERITAGE MANAGEMENT	Impact management outcomes: - Protect tangible and intangible cultural heritage from adverse impacts of construction activities and support its preservation. - Identify, avoid, and minimize impacts on archaeological sites, built heritage, cultural landscapes, and natural features of cultural significance. - Implement a robust system to respond to chance finds to ensure protection of cultural heritage discovered unexpectedly during construction activities and prevent disturbance until proper assessment is completed. - Comply with heritage legislation and permitting, including South Africa's NHRA Section 38 where applicable.						
GH1	Ensure identified heritage features and defined buffer areas are delineated as no-go areas prior to construction to avoid disturbance to known features.	PC, C, O, D	Known or newly identified heritage features and buffers, if any	DPM; C; CEO	Before works near features and maintained while activities occur nearby	ECO	Before construction; weekly near heritage no-go areas	Heritage features/buffers demarcated; no disturbance of protected features



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	Demarcation to be maintained during active construction / operation activities in proximity to the site/s.							
GH2	Training and awareness provided to all relevant workers on any pre-identified heritage features and the impact management controls required for these.	PC, C, D	Worker induction and training near known heritage features, if any	C; CEO	Before relevant workers commence and refreshed as required	ECO	At induction; before works near features	Training records; workers aware of controls for identified heritage features
GH3	Training and awareness provided to all relevant workers on what typical heritage features may be encountered and how to identify these. Ensure awareness that the chance finds procedure must be implemented on the discovery of a feature, and specifically reinforce stop work requirements.	PC, C, D	Heritage awareness for ground-disturbing works	C; CEO	Before excavation/earthworks and refreshed as required	ECO	At induction; toolbox talks before earthworks	Training records; workers understand chance-find stop-work requirements



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GH4	- Implement the following Chance Finds Procedure for any unexpected cultural heritage features (including inter alia archaeological features or graves) discovered during construction: - Stop all work affecting the area. - Inform the CEO, who in turn must inform the ECO. - Incident to be recorded in the incident and non-compliance register and relevant procedures followed. - Protect from damage, theft, or weather; use guards if necessary for sensitive items.	C, D	Excavation, trenching, earthworks and any ground-disturbing activities	C; CEO; ECO	Immediately on discovery and until authority/specialist clearance	ECO; IA	Continuous during ground disturbance; incident-based	Chance-find records; photographs/GPS; heritage authority/specialist clearance before recommencement



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	- Record details in an incident report, take photographs, and log GPS coordinates. - Undertake a rapid evaluation by a suitably qualified specialist (e.g. archaeologist) to determine cultural, historical, or scientific value. - Notify relevant heritage agency in writing within 7 days of discovery. - Follow processes and instruction issued by the relevant heritage agency.							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	Work in the area can only recommence after clearance from heritage authority and implementation of mitigation measures.							
GH5	Local people should receive preference for employment opportunities for unskilled, and where practical for available skilled workers.	C	Recruitment for construction employment opportunities	DPM; C	During recruitment and appointment of workers	ECO	Monthly during recruitment/construction	Local employment records; unskilled/local workers given preference where practical
SH01	The heritage chance-find procedure must also apply to palaeontological material. If fossils, fossiliferous rock, bone, trace fossils or suspected palaeontological resources are exposed during excavation, trenching or earthworks, work in the immediate area must stop, the ECO	C, D	Excavation, trenching, earthworks and any activities exposing subsurface material.	DPM, C, CEO, ECO	Immediately upon discovery and until clearance is received.	ECO / IA	Continuous awareness during earthworks; incident-based monitoring.	Stop-work record; photographs/GPS; specialist/SAHRA correspondence; clearance before recommencement.



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	must be notified, the find must be protected, and a suitably qualified palaeontologist and SAHRA/heritage authority must be consulted before work may recommence.							
10.11	LABOUR MANAGEMENT	Impact management outcomes: - Fair treatment, non-discrimination, equal opportunity for all workers, including subcontracted and migrant workers. - Worker–management relationship strengthened; respect freedom of association and collective bargaining consistent with national law. - Compliant terms and conditions of employment (contracts, wages, working time, leave, termination) per applicable law/standards. - No child or forced labour in the project or primary supply chain; robust age verification and anti-coercion controls. - All necessary precautions linked to the spread of disease are taken. - Accessible worker grievance mechanism (WGRM) with confidentiality, non-retaliation, and timely resolution. - Decent worker accommodation and welfare.						
GL1	Written employment particulars/contracts with defined wages, hours, leave, termination conditions. These must be compliant with the Basic Conditions of Employment Act.	PC, C, O, D	Employment and contractor labour management	DPM; C; O&M	Before workers commence and throughout employment	ECO; DPM	Monthly during construction; annually during operation	Written contracts/particulars available; conditions comply with BCEA
GL2	No child labour or forced labour on the project.	PC, C, O, D	Recruitment and employment of workers and subcontractors	DPM; C; O&M	Before worker appointment and throughout project phases	ECO; DPM	During recruitment; monthly during construction audits	Age verification/worker records; no child or forced labour
GL3	A grievance mechanism aimed at receiving and resolving labour issues must be	PC, C, O, D	Worker grievance management	DPM; C; CEO; O&M	Prior to workforce mobilisation and throughout project phases	ECO; IA	Monthly register review; after each grievance	Worker grievance mechanism available; records of grievances/responses; no retaliation



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	developed and implemented. This must as a minimum include: • Dedicated roles and responsibilities; • Must be accessible to workers (consider physical access, literacy, languages, etc); • Must have a clear issue tracking mechanism and target resolution timelines. • Tracking and logging of all receipts and responses. • Workers must be informed of grievance procedures. • The Grievance mechanism must be made available for							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	inspection by the ECO and IEA.							
GL4	Provision must be made for adequate sanitation for all workers (including ablutions and washing facilities where necessary). Sanitation facilities must be adequately maintained and serviced. Provision of at least 1 toilet for every 15 workers and separate facilities for males / females.	PC, C, O, D	Worker welfare, ablutions and washing facilities	C; CEO; O&M	Before workforce mobilisation and throughout project phases	ECO	Daily by CEO; weekly ECO inspections during construction	Adequate sanitation ratio; separate facilities; service/maintenance records
GL5	- Where mobile chemical toilets are required, the following must be ensured: - Toilets are located no closer than 100 m to any watercourse or water body. - Toilets are secured to the ground. - No spillage occurs when the toilets are cleaned	C, D	Use and servicing of mobile chemical toilets	C; CEO	Before use and throughout construction/decommissioning	ECO	Daily visual checks; weekly ECO inspections; service frequency per supplier	Toilets correctly located/secured/serviced ; no leaks or toilet-paper litter



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
	or emptied, and the contents are managed in accordance with the WMP. • Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out. • Toilets are emptied before long period of inactivity/ non-use (e.g. weekends, workers holidays). • Toilets are serviced regularly and comply to health standards.							



Item No.	Impact management action	Project development phase ³	Development activities	Responsible party ⁴	Timeframe for implementation	Monitoring party	Monitoring frequency	Performance Indicators (Monitoring Tool)
GL6	The surrounding environment shall not be used for ablution/sanitation purposes.	C, O, D	Worker conduct and sanitation	C; CEO; O&M	Throughout project phases	ECO	Daily by site supervision; weekly ECO inspections during construction	No evidence of environmental ablution; sanitation facilities used
GL7	Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS.	PC, C, O, D	Worker health induction and awareness	C; CEO; O&M	At induction and periodically throughout project phases	ECO	At induction; quarterly toolbox talks or as required	HIV/STI awareness records; attendance registers; awareness material available
SL1	No overnight worker accommodation on site.	PC, C, O, D	Worker accommodation planning and workforce management	DPM; C; CEO; O&M	Prior to mobilisation and throughout project phases	ECO	Monthly during construction; during audits	No overnight worker accommodation on site; no camp-related impacts



11 APPENDICES

Appendix 1: EAP Curriculum Vitae

CURRICULUM VITAE

Name:	Liam Michael Whitlow
Nationality:	South African
Date of Birth:	22 August 1978
Profession:	Environmental Scientist
Professional Qualification/ Training:	BSc Honours Environmental Management; Rand Afrikaans University (now University of Johannesburg), 2000
	Higher Certificate in Project Management; Damelin Business School, 2001.
	ISO 14001 Auditor Training; BVQI, 2003.
	Environmental Monitoring- Fallout Dust Training; Dustwatch, 2014.
	Aquifer Hydraulics and Groundwater Monitoring Certificate Course; North West University, 2014.
	Carbon Footprint Analyst Course; Terra Firma Academy, 2017.
Professional Membership/ Registrations:	Registered Environmental Assessment Practitioner: Number 2019/222 Registered Professional Natural Scientist (SACNASP- #400148/08). Member of Land Rehabilitation Society of Southern Africa (LaRSSA).
Current Employer:	Environmental Impact Management Services (Pty) Ltd.

KEY EXPERIENCE

Liam holds a B. Sc. Hons degree in Environmental Management and has completed an additional B. Sc. honours course in applied limnology. In addition he has completed a higher certificate in Project Management with Damelin Business School and a course on ISO14001 Auditing Principles and Environmental Management Systems Auditor Training. Liam is a registered professional natural scientist with the South African Council for Natural Scientific Professions. Liam's professional experience, gained over more than 24 years, lies mainly with environmental impact assessments including project managing significantly large EIA's in the mining and infrastructure sectors. Liam's other experience includes ISO14001, Site Assessments, Water-use licensing, Environmental monitoring, and Environmental Management Plans. Liam's experience lies mainly within South Africa but he has been involved in projects in both Lesotho and Botswana.

CAREER SUMMARY

Period: January 2011- Current	Organisation: EIMS	Position: Director, Senior Environmental Assessment Practitioner
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Key Projects/Assignments	<u>Technical Director:</u> Responsible for the technical management of EIMS including the following aspects: • Technical review and direction for complex projects; • Quality control and assurance; • Staff management and performance review; • Client management; and • Marketing and business development. <u>General Project Experience:</u> • Africa Oil SA Corp Block 3B/4B Offshore Exploration Right: EIMS was appointed by African Oil SA Corp to undertake the Environmental Impact Assessment (EIA) for the proposed Block 3B/4B Exploration Right offshore South Africa. Liam was responsible for technical review and oversight and approval of documents. • Tosaco Block 1 Offshore Exploration Right EIA: EIMS was appointed to undertake the Environmental Impact Assessment associated with the ER326 Exploration Right Application for Tosaco Energy (Pty) Ltd. Liam was responsible for technical review and oversight and approval of documents. • Environmental Authorisation applications for offshore seismic surveys of the West Coast of South Africa, for TGS and Searcher: EIMS was appointed to assist with a Basic Assessment application for 3D seismic surveys off the West Coast of South Africa on behalf of Searcher Geodata UK Limited and TGS. Liam was responsible for technical review and oversight and approval of documents. • EIMS was appointed to conduct an environmental due diligence of an environmental assessment conducted as part of the application for funding to the DBSA by Ilitha Fibre Optics. This included review of the Environmental and Social Impact Assessment undertaken in accordance with the DBSA's Environmental and Social Safeguard Standards. Liam fulfilled the role of technical director for the project. • Transnet Multi-products Pipeline (~650km total length) in Gauteng, Mpumalanga and between Durban and Johannesburg, RSA. Project manager and Environmental Advisor to the New Multiproduct Pipeline (NMPP) Alliance for the monitoring of construction phase. 2009-2017. • Olifants River Water Resources Development Project, Steelpoort, Mpumalanga, RSA. EIMS was appointed to undertake the required environmental monitoring (noise, air quality, and water quality) for the construction of the Phase 1C of the bulk water pipeline. Project manager, 2012-2017. • GSW Dilokong Chrome Mine Due Diligence, Limpopo, RSA. Environmental lead to undertake an environmental due. 2017.
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- Tshipi é Ntle Manganese Mine Environmental Due Diligence, Kathu, Northern Cape, RSA. Project manager and senior consultant (in association with GSW) for an environmental review to inform a due diligence being undertaken. 2017.
- Libra Due Diligence, Mpumalanga and Free State Province, RSA. Project manager and senior consultant to conduct a high level environmental review and due diligence study for the Anglo Libra project (incl various Anglo Coal assets) for Mindset Mining Consultants, 2016.
- Sedgman Environmental Training, Pretoria, RSA. Compiled and presented a training workshop to Sedgman Engineers, focusing on the application and interpretation of the South African Environmental Laws, in relation to their operations and client profile. 2017.
- EIA and EMP for the Transnet Richards Bay Coal Line: Overvaal Tunnel, Mpumalanga Province. Project manager, responsible for successful completion of the EIA. 2015-2016.
- Tetra 4 Virginia Natural Gas Production, Water Monitoring, Free State, RSA. Project manager appointed to undertake surface and groundwater sampling to establish an environmental baseline and to monitor the actual impacts associated with the proposed natural gas production activities. 2015-2017.
- Drafted the 2014-2019, 3rd Edition Environmental Management, Plan (compiled in terms of Section 11(2) of the National Environmental Management Act 1998 (act 107 of 1998), for the National Department of Energy. Project manager and report writer. 2014-2015.
- Environmental Advisory to the Government Technical Advisory Centre, Public Private Partnership Unit. Environmental lead in a team of consultants providing consulting services to report to the GTAC on the lessons learn from past PPP's and to suggest means of improving the process for future PPP's. 2015.
- Eskom Lambda 400-765kV Sub-station and Associated Transmission Lines, Mpumalanga, RSA. Project manager and Environmental Assessment Practitioner for EIA. 2010-2012.

Mine Closure and Financial Provisioning:

- Determined Financial Provisions in accordance with the 'Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision' provided by a Mine (DMR Guideline): Mooiplaats Colliery 2018; Exxaro Paardeplaats Coal Mine- Update 2018.
- Final Rehabilitation, Decommissioning and Closure Plan (FRDCP) prepared in accordance with the requirements of the NEMA Financial Provisioning Regulations (2015) (NEMA GNR 1147): Tetra 4 Virginia Natural Gas Project, 2017; Motuoane Gas Hennenman Exploration Right-2017; Motuoane Gas Ladysmith Exploration Right- 2017; Sungu Sungu Dannhauser Exploration Right- 2016; Kangala Colliery- Eloff Phase 3 Pit-2020; Anker Coal Elandsfontein Colliery-2021.



- Review of closure plans and financial provisions for closure as a component of Due Diligence and/or Competent Persons Reports: Environmental Review for 5 large Coal mining operations held by Exxaro- 2018; Environmental Review for Dilokong Chrome Mine- 2017; Environmental Review for Tshipi Mine- 2017; Environmental Review on numerous large coal mines held by Anglo Coal-2016.

Environmental Monitoring:

- Project manager and senior environmental scientist for the construction phase environmental monitoring on the Olifants River Water Resources Project Phase 2C (bulk water pipeline). The project included monitoring of water (point and diffuse), air quality (PM10 and fallout dust), and noise to ensure and guide compliance with the environmental specifications of the construction phase EMPR.
- Project manager and senior environmental scientist for the water resource monitoring of the Tetra4 Virginia Natural Gas Production Project. This includes specialist low-flow sampling of dissolved gases in the groundwater as well as general water quality parameters in both regional ground and surface water resources.
- Project Director for the routine water resource (surface and groundwater) monitoring being undertaken for the United Manganese of the Kalahari (UMK), manganese mine in Northern Cape. Responsible for technical and quality review and oversight.

Greenhouse Gas Accounting and Carbon footprint:

- UMK GHG and Carbon Footprint: Prepared a GHG emissions inventory and calculation for scope 1,2, and 3 for United Manganese of Kalahari (Pty) Ltd.
- Geosol and Water Annual Greenhouse Gas and Emissions Reporting for various mining operations: Prepared the Annual GHG Emission Report for the 2019 to 2024 reporting years as required by the GHG Regulations.

Compliance Auditing:

- Tetra4 onshore natural gas production right_Environmental Authorisation and Water Use Licence Audits- Project technical director responsible for review and oversight of the audits.
- Azinam Block 2B Closure Application: EIMS was appointed to assist Azinam South Africa in their application for closure in terms of Section 43 of the MPRDA for the Offshore Block 2B Exploration Right and Environmental Authorisation. The application process includes a NEMA Regulation 34 Compliance Audit. Liam was responsible for final review and authorisation of the report.
- Azinam Block 2B Close Out Audit: EIMS was appointed to undertake the Close Out NEMA Environmental Audit for the Offshore Block 2B Exploration Right and Environmental Authorisation. Liam was responsible for final review and authorisation of the report.



	- Azinam Block 2B NEMA Audit: EIMS was appointed to undertake the NEMA Environmental Audit for the Offshore Block 2B Exploration Right and Environmental Authorisation. Liam was responsible for authorisation of the report. - Sunbird Energy NEMA EA and EMPr audit: Sunbird Energy Holdings appointed EIMS to undertake an audit for their offshore exploration right EA and EMPr. Liam was responsible for authorisation of the report. - PetroSA External Verification Audit of the EMPRs for the Block 9 Licence Area: Undertaking an external compliance audit against the annual performance assessments done for the FA-EA, SCG, Oribi/Oryx and FO production areas for the PetroSA Block 9 Licence Area. Liam was responsible for review and authorisation of the report. - PetroSA Independent Environmental Compliance Audits: EIMS was appointed to provide the services of an External Compliance Auditor to undertake an Independent Audit of the respective Environmental management Programmes (EMPR) and Environmental Authorisations (EA) for the following offshore exploration blocks: Block 2C, Block 3A/4A and Block 9/11A. Liam was the assigned auditor for the Block 9 and 11A right and was the technical reviewer for Block 2C and 3A/4A.	
Period: January 2002-December 2010	Organisation: EIMS	Position: Senior Environmental Assessment Practitioner
Key Projects/Assignments	Project Manager and Environmental Assessment Practitioner for the following: - Environmental applications, including EIAs, and mining permit applications, for various (7 Packages including N1, N3, N12, R21, and R24) Gauteng road upgrades as part of the Gauteng Freeway Improvement Project. EIMS was also appointed to undertake the role of Independent ECO's for certain GFIP Packages - EIA for OCGT Peaking Power Station within the Coega IDZ. - EIA for spent nuclear fuel storage facility at Pelindaba. - EIA for nuclear waste smelter at Pelindaba. - EIA and water-use licensing for an underground ash disposal facility in Mpumalanga Province. - EIA for the proposed upgrade of the effluent collection and treatment facilities at the South African Nuclear Energy Corporation, Pelindaba. - EIA for proposed Garona to Aries 400KV Transmission line. - EIA for numerous Golf Estates. - EIA for Market Street Underpass as part of the Provincial government Precinct and City Square (Johannesburg) CBD.	



- EIA's for numerous residential developments.
- Scoping report for the Eskom Janus substation in Limpopo Province.
- EIA's for low-cost housing developments in the East Rand, Ekurhuleni Metropolitan Council as part of the Regional Professional Team.
- Environmental exemption process for a World Summit on Sustainable Development project, Moroka Dam, Gauteng Province.
- Numerous environmental exemption applications for housing developments.
- Environmental Scoping studies for Sentech telecommunication masts in Eastern Cape Province.
- Environmental Studies for telecommunication facilities for Vodacom.
- Environmental Studies for 150+ telecommunication facilities for Cell C and Siemens in five provinces.
- Environmental Studies for Eskom Telecommunications.

Environmental Site Assessment and Remediation:

- Participation in several Environmental Site Assessments in Gaborone (Botswana) and Mpumalanga.

Strategic Environmental Assessment:

- Participation in the compilation of the Strategic Environmental Assessment for the Hartbeespoort Dam area.

ISO 14001 Environmental Management Systems and Auditing

- Participation in the compilation of the ISO 14001 system (legal register) for Coega Development Corporation, Eastern Cape Province.
- Participation in the compilation of the ISO 14001 system (legal register) for Matimba Power Station in Limpopo Province.

Mining Related Permits and Rights

- Environmental Management Programme and EIA for the Cranemere Gas Exploration Project in the Eastern Cape Province.
- EIA and EMPR for the proposed Loopspruit Coal Mine, Mpumalanga Province.
- Project Manager for in excess of 40 mining permit applications for the Transnet New Multi-products Pipeline, Inland and Trunkline (between Johannesburg and Durban). Applications submitted in 4 different provinces.
- Project Manager for 5 Mining Permit Applications for the South African National Roads Agencies Gauteng Freeway Improvement Project.

Numerous NEMA Section 24(G) Rectification applications for a broad spectrum of developments



LANGUAGE CAPABILITY

Language	Speak	Read	Write
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Excellent	Good

DECLARATION

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature.

Signature of Staff Member

2026/02/25

Date

**Environmental Assessment
Practitioners Association
of South Africa**



Registration No. 2019/222

Herewith certifies that

LIAM WHITLOW

is registered as an

Environmental Assessment Practitioner

**Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations**

**(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended).**

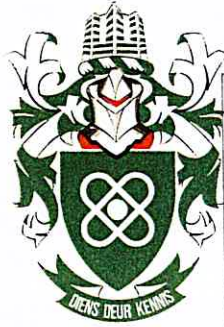
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Expires: 31 March 2027

Chairperson

Registrar





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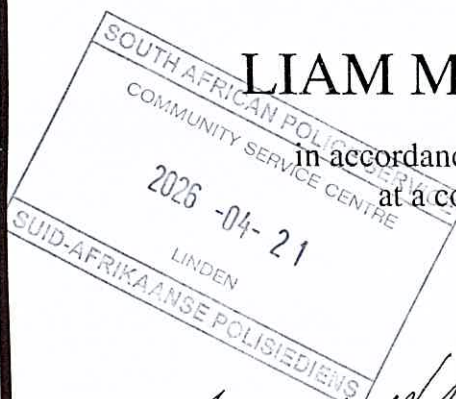
with field of study

Geography and Environmental Management

with all its associated rights and privileges
has been awarded to

LIAM MICHAEL WHITLOW

in accordance with the Statute of the University
at a congregation of the University.



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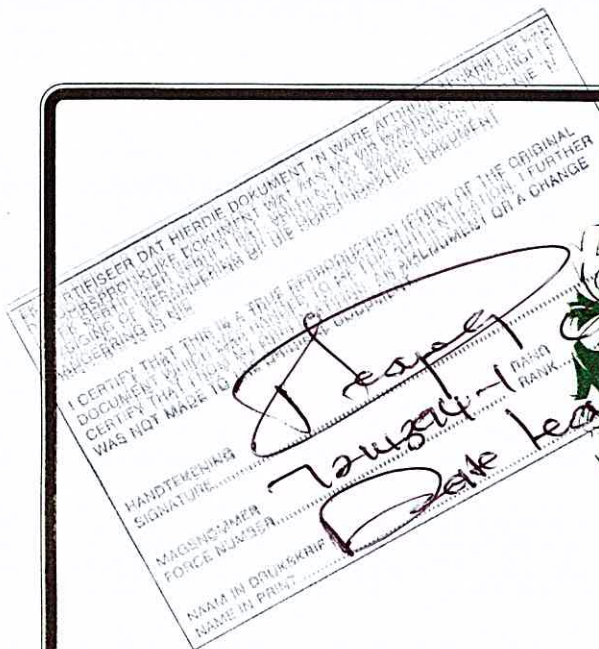
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BACCALAUREUS SCIENTIAE

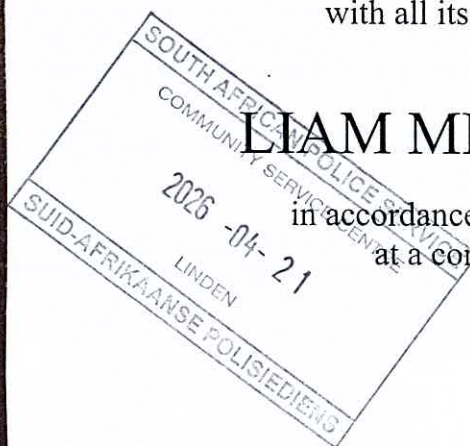
with field of study

Earth Sciences

with all its associated rights and privileges
has been awarded to

LIAM MICHAEL WHITLOW

in accordance with the Statute of the University
at a congregation of the University.



Rector

Registrar (Academic)

15 MARCH 2000
Johannesburg
ID 7808225014082





THE OPEN LEARNING CAMPUS

CERTIFICATE

AWARDED TO

Liam Whitlow

for having successfully completed the course

"Sustainability Reporting Essentials"

19 December 2025

Edna M Diez
Director, Career, Performance and Learning (Human Resources Vice Presidency)
World Bank Group



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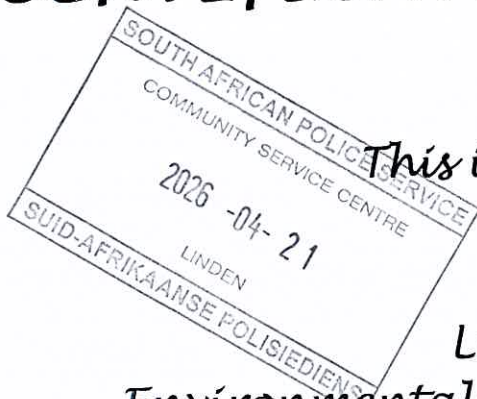
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CERTIFICATE OF ATTENDANCE



This is to certify that

Liam Whitlow

Environmental Impact Management Services

*attended the "Carbon Tax Half Day Workshop" at
IMBEWU's Offices in Johannesburg on 25 June 2019*

Peggy Schoeman
Peggy Schoeman
Senior Sustainability Legal Consultant

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NAME IN PRINT..... *Peggy Schoeman*

RANG
RANK..... *CST*

This is to certify that

Liam Whitlow

has successfully completed the

Carbon Footprint Analyst

on

1st November 2017



TIM BALCON - CEO IEMA

ESTEE VAN DEN BERG - ACADEMY MANAGER
TERRA FIRMA ACADEMY

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NAAM IN DRUKSKRIEF
NAME IN PRINT..... Deane Leary

RAND
BANK..... Est





Certificate of Attendance

This is to certify that

Liam Michael Whitlow

7808225014082

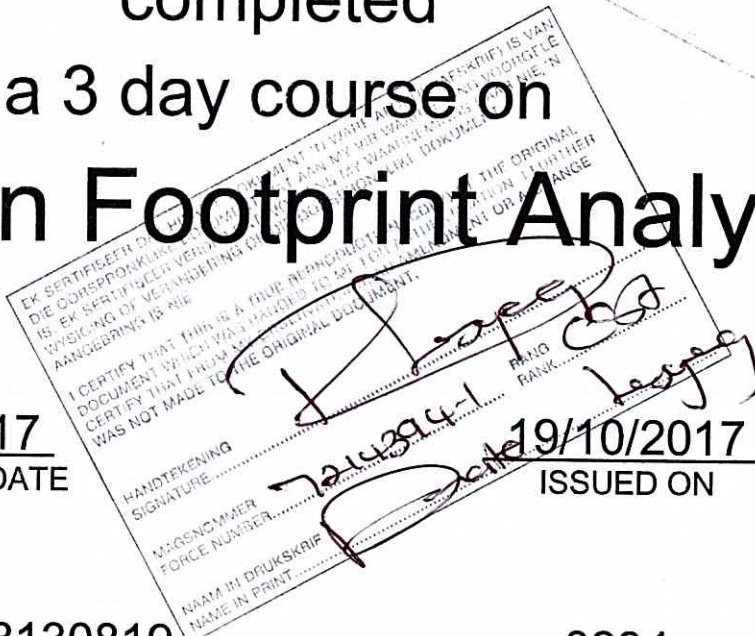
has attended and successfully

completed

a 3 day course on

Carbon Footprint Analyst

19/10/2017
COMPLETION DATE



LGRS-Tayri-513130819
PREMIER GROUP ACCREDITATION

0284
CERTIFICATE NO

Caitlin Keam
Caitlin Keam | Course Facilitator



Certificate of Attendance

Herewith to certify that

LM Whitlow

attended



GROUNDWATER SAMPLING WORKSHOP
at the
Centre for Water Sciences and Management

18 – 20 November 2014
Potchefstroom, South Africa

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FORCE NUMBER.....

NAAM IN DRUKSKRIEF
NAME IN PRINT.....

[Signature]
Prof Ingrid Dennis
Director



NORTH-WEST UNIVERSITY
UNIBESITHI YA BOKONE-BOPHIRIMA
KHOOROBES-UNIBESITHI

OFFICIAL DOCUMENT



Liam Whitlow

7808225014082

The person mentioned has received formal instruction and training on the subject of
Environmental Monitoring – Fallout Dust

Training Dates: 18 February - 20 February 2014 (3 Day Course)

Synopsis of Training - Practical 1 Day:

Changing DustWatch buckets; Basic operational use of the DustWatch units; Filtering water from
the buckets and collecting the dust on filters.

Synopsis of Training - Theoretical 2 Days:

What is fallout dust and how to collect it; settling velocity and shape of dust particles; Understand
how to calculate the fallout dust monitoring results in mg/m²/day and how to interpret these
results; Report writing and presentation options for the results; Trace element analysis; South
African legislation interpretation.

Gerry F. Kuhn
FMVS, MSAIOH,
Grad SE

DUSTWATCH
Dust Monitoring Specialists

Trained By DustWatch CC
www.dustwatch.com
info@dustwatch.com

Chris Loans
BSc Chemical Eng
Pr Eng

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MAGSNOUMMER
FORCE NUMBER

NAAM IN DRUK
NAME IN PRINT

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BANK

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GIMS (Pty) Ltd



ESRI
Authorized
International
Training
Center

Leica
Geosystems

CERTIFICATE

This is to certify that
Liam Whitlow
ID Number 7808225014082
Has attended and
successfully completed the exam for

Introduction to ArcGIS I



Course Number

TRN03-0084

From

3 November 2003

To

5 November 2003

W. van der Merwe

Instructor

A. Post

Manager

EK SERTIFISEER DAT HIERDIE DOKUMENT 'N WARE AFDRUK (AFSKRIF) IS VAN DIE OORSPRONKLIKE DOKUMENT WAT AAN MY VIR WAARNEMING VOORGELE IS. EK SERTIFISEER VERDER DAT, VOLGENS MY WAARNEMING, DAAR NIE 'N WYSGING OF VERANDERING OP DIE OORSPRONKLIKE DOKUMENT AANGEBRING IS NIE.

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IN DRUKSKRIJF
IN PRINT

Damelin

EDUCATION GROUP

This is to certify that,
all the requirements having been satisfied, a

Higher Certificate

in

Project Management

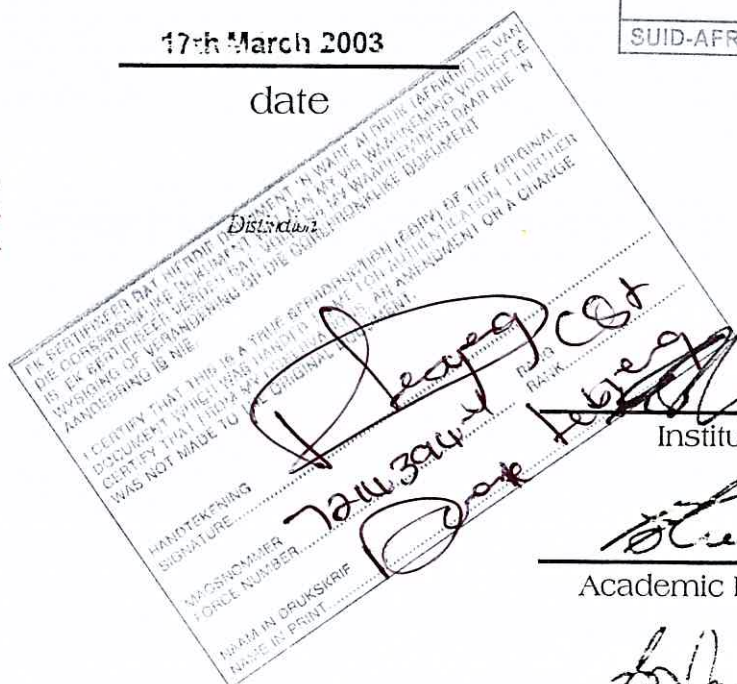
has been awarded to

Liam Michael Whitlow

SOUTH AFRICAN POLICE SERVICE
COMMUNITY SERVICE CENTRE
2026 -04- 21
LINDEN
SUID-AFRIKAANSE POLISIEDIEN

17th March 2003

date



Institute

Academic Director

Registrar

CERTIFICATE OF COMPETENCY

IK SERTIFISEER DAT HIERDIE DOKUMENT 'N WAIE AFDRUK (AFKRIEF) IS VAN
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SIGNATURE: *[Signature]*

MACSNUMMER
FORCE NUMBER: 7014394-1

NAAM IN DRUKSKRIEF
NAME IN PRINT: *[Signature]*

RANG
RANK: *[Signature]*

This is to certify that

Liam Whitlow

has successfully completed
the RAC Driving Solutions
Skid Monster & 4 X 4 Programme



A programme incorporating:

The development of skills in the Prevention, Detection and Correction of skids in a driving range area, to those that must be performed under all types of on-road driving environments as well as an Intermediate 4 X 4 course which covers environmentally friendly driving, safety, off road techniques, ascending, descending, ditches and ridges, basic recovery and post off road checks.

[Signature]
Chief Instructor

October 2008

Date


Endangered Wildlife Trust
www.ewt.org.za



GEREGISTREERDE WOON- EN POSADRES

1. Bewaar die bewys van u GEREGISTREERDE WOON- EN POSADRES in hierdie sakke.
2. Indien u van adres verander het, of indien besonderhede van u huidige adres, bv. straatnaam en of nommer, ens. verander het, moet die vorm KENNISGEWING VAN ADRESVERANDERING, wat in die sakke agter in die identiteitsdokument is, gebruik word om die verandering aan te meld en moet dit ingedien word by of gepos word aan die naaste streek-distrikkantoor van die DEPARTEMENT VAN BINNELANDSE SAKE.

REGISTERED RESIDENTIAL AND POSTAL ADDRESS

1. Keep the proof of your REGISTERED RESIDENTIAL AND POSTAL ADDRESS in this pocket.
2. If you have changed your address, or if particulars of your present address, e.g. name of street and or street number, etc., have been changed, the NOTICE OF CHANGE OF ADDRESS form in the pocket at the back of the identity document must be used to report the change and it must be handed in at or posted to the nearest regional/district office of the DEPARTMENT OF HOME AFFAIRS.

I.D.No. 780822 5014 08 2



S.A. BURGER/S.A. CITIZEN

VAN/SURNAME

WHITLOW

VOORNAME/FORENAMES

LIAM MICHAEL

GEBOORTEDISTRIK OF-LAND/
DISTRICT OR COUNTRY OF BIRTH

SOUTH AFRICA

GEBOORTEDATUM/
DATE OF BIRTH

1978-08-22



DATUM UITGEREIK
DATE ISSUED

1996-10-07

UITGEREIK OP GESAG VAN DIE
DIREKTEUR-GENERAAL:
BINNELANDSE SAKE

ISSUED BY AUTHORITY OF THE
DIRECTOR-GENERAL:
HOME AFFAIRS

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COMMUNITY SERVICE CENTRE

2026 -04- 21

LINDEN

SUID-AFRIKAANSE POLISIEDIENS

CURRICULUM VITAE

Name:	Andre van Rooyen
Nationality:	South African
Date of Birth:	17 January 1998
Profession:	Environmental Consultant
Professional Qualification/ Training:	BSc Zoology & Environmental Management; University of the Johannesburg, 2023
Professional Membership/ Registrations:	EAPASA Candidate EAP, No: 2023/6845 SACNASP Candidate Natural Scientist, No: 164675
Current Employer:	Environnemental Impact Management Services (Pty) Ltd.

KEY EXPERIENCE

Mr Andre van Rooyen is a registered Candidate Environmental Assessment Practitioner (EAP) and Candidate Natural Scientist currently functioning as an Environmental Consultant at EIMS. He has gained extensive experience across a wide range of environmental management, compliance, and assessment projects in the mining, energy, petrochemical, gas exploration, and industrial sectors.

His core experience includes:

- Environmental compliance monitoring, including surface water, groundwater, dust, and noise monitoring, as well as data interpretation and reporting.
- Compilation of regulatory documentation, including IWWMPs, Water Use Licence Applications, and rehabilitation and maintenance plans for tailings storage facilities (TSFs) and pipeline projects.
- Environmental Control Officer (ECO) responsibilities for multiple decommissioning and operational projects, including tank decommissioning, facility decommissioning, and renewable energy developments.
- Greenhouse Gas (GHG) reporting on the SAGERS and NAEIS platforms for various mining and industrial clients, including coal, manganese, and gas exploration projects.
- Environmental auditing, including Water Use Licence audits for solar PV facilities.
- Air quality offsets, assisting in the implementation of air quality offset programmes for large industrial operations.
- Environmental Assessment Report (EAR) preparation for ongoing Section 24G applications under NEMA, including impact identification, mitigation development, and stakeholder engagement inputs.
- Support in Environmental Impact Assessments (EIAs) through baseline data collection, environmental input preparation, and specialist coordination.



CAREER SUMMARY

Period: April 2023 - Present:	Organisation: EIMS	Position: Environmental Assessment Practitioner
Key Projects/Assignments	Currently involved in a number of ongoing projects, EIAs, etc. Selected Project Experience: • Contributed to the air quality offset programme for SASOL Secunda operations. • Conducted water quality, dust, and noise monitoring and reporting for the Mbali Coal Mine. • Responsible for surface water and groundwater quality monitoring and greenhouse gas reporting (SAGERS) for the Motuoane Hennenman Gas Exploration Project. • Conducted groundwater quality monitoring at various FFS Refiners locations. • ECO for FFS Refiners' tank decommissioning activities. • ECO for the decommissioning of the FFS Pietermaritzburg facility. • Compiled IWWMPs and Water Use Licence Applications for Harmony Gold's TSFs and pipeline infrastructure projects, including the development of rehabilitation and maintenance plans. • Conducted Water Use Licence audits for ENEL Green Power's Solar PV facilities. • Served as ECO for the Great Karoo Wind Energy Facility (ENEL). • Compiling Environmental Assessment Reports (EARs) for two Section 24G applications under NEMA, including data analysis, impact assessment, and mitigation development. • Completed greenhouse gas reporting (SAGERS and NAEIS) for various mining and gas-sector clients, including coal, manganese, and gas exploration operations.	

LANGUAGE CAPABILITY

Language	Speak	Read	Write
English	Excellent	Excellent	Excellent
Afrikaans	Excellent	Good	Good



DECLARATION

I confirm that the above information contained in the CV is an accurate description of my experience and qualifications and that, at the time of signature.

Signature of Staff Member

10/02/2026

Date

SACNASP

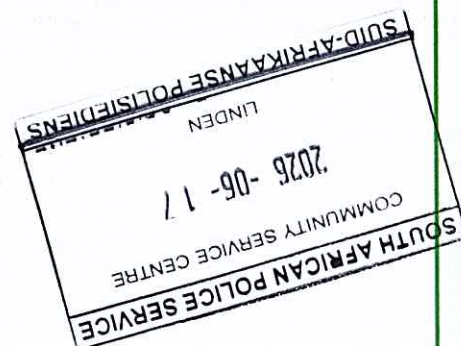
South African Council for Natural Scientific Professions

herewith certifies that

Andre van Rooyen

Registration Number: 164675

is a registered scientist



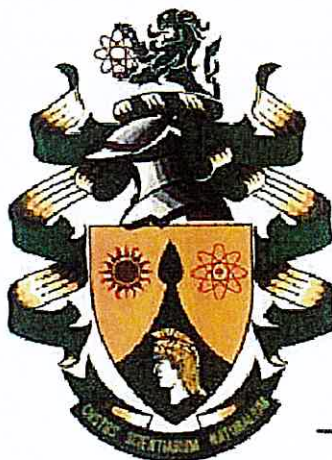
in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)

in the following field(s) of practice (Schedule 1 of the Act)

Environmental Science (Candidate Natural Scientist)

Effective 12 June 2024

Expires 31 March 2027




President of Council


Chief Executive Officer

To verify this certificate scan this code



**Environmental Assessment
Practitioners Association
of South Africa**



Registration No. 2023/6845

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WYKONING OF VERVOLGENING OP DIE OORSPRONKELIKE DOKUMENT
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7022857-4

W/O

Herewith certifies that

ANDRE VAN ROOYEN

is registered as an

Candidate Environmental Assessment Practitioner

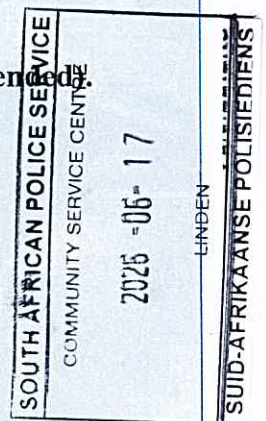
**Registered in accordance with the prescribed criteria of Regulation 15. (1)
of the Section 24H Registration Authority Regulations
(Regulation No. 849, Gazette No. 40154 of 22 July 2016, of the
National Environmental Management Act (NEMA), Act No. 107 of 1998, as amended.**

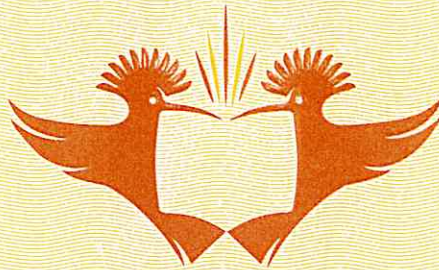
Effective: 01 April 2026

Expires: 31 March 2027

Chairperson

Registrar





UNIVERSITY
OF
JOHANNESBURG

The Council and the Senate of the
UNIVERSITY OF JOHANNESBURG
hereby certify that the degree

Bachelor of Science

with field of study

Life and Environmental Sciences in Zoology and Environmental
Management

with all its associated rights and privileges
in accordance with the Statute of the University
has been conferred upon

ANDRE VAN ROOYEN

at a congregation of the University

Vice-Chancellor and Principal



Registrar

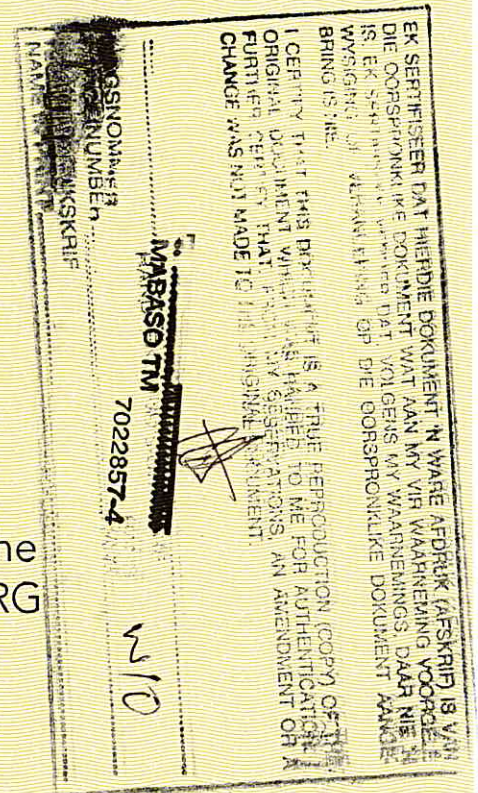


Only valid when verified
by <https://dcveri.uj.ac.za>

15 March 2023
Johannesburg
ID/Passport No: 9801175146085



N00121299





This certifies that

Andre van Rooyen

Environmental Impact Management Services

Signed Full Attendance at the Ground Water Division of the
Geological Society of South Africa course on

16 – 19 September 2024 | Roodeplaat, Pretoria

***Groundwater Short Course: Geochemistry and
Remediation***

Aquifer Conceptualisation | Groundwater Governance
Groundwater Exploration, Sampling Techniques, Modelling,
Data Management | Geochemistry And Contaminant Hydrology
| Remediation | Case Studies

SACNASP VALIDATION NR. 2024-0113-003232

*This certificate entitles the recipient to 4 (four) Continuing
Professional Development (CPD) credits under Category 1*

Signed on behalf of the Ground Water Division

DR NICOLETTE VERMAAK
GWD NATIONAL VICE-CHAIR

19 September 2024

DATE



Issued by the Office of the GWD National Secretariat

 **REPUBLIC OF SOUTH AFRICA**
NATIONAL IDENTITY CARD

Surname:
VAN ROOYEN
Names:
ANDRE
Sex:
M
Nationality:
RSA
Identity Number:
9801175146085
Date of Birth:
17 JAN 1998
Country of Birth:
RSA
Status:
CITIZEN



Signature: 

Conditions:
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Identification Act, Act 68 of 1997
If found please return to the Department of Home Affairs
For enquiry or verification purposes contact 0800 80 11 90

Date of Issue:
20 MAR 2024

RSA



124145679



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2026-06-17
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NAME IN PRINT..... **WFO**